DOCUMENT RESUME

ED 065 906 EA 004 394

TITLE	EA20: Regional School Design Workshop (14th, St. Catharines, Ontario, March 15-16, 1972).
INSTITUTION	Ontario Dept. of Education, Toronto. School Planning and Building Research Section.
PUB DATE	Mar 72
NOTE	145p.; Speeches and Notes prepared by Workshop participants
EDRS PRICE	MF-$0.65 HC-$6.58
DESCRIPTORS	*Building Obsolescence; Capital Outlay (for Fixed Assets); Community Schools; Criteria; Early Childhood Education; Enrollment Projections; Exceptional Children; Facility Utilization Research; High Schools; *Instructional Materials Centers; *Planning (Facilities); *School Community Relationship; *School Improvement; Site Development
IDENTIFIERS	Canada; Community Centers; Shared Facilities

ABSTRACT

This document contains the speeches and notes of workshop participants assembled to discuss the rehabilitation and renovation of existing schools in keeping with new educational requirements. Thirty-seven selections cover such topics as criteria for planning; development of school sites; community use of the schools; education and architecture; renovation, rehabilitation, and alteration of schools; library resource centers; early childhood education; shared use of school facilities; and the integration of school facilities to accommodate exceptional children. (MLF)

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Holiday Inn
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SCHOOL PLANNING AND BUILDING RESEARCH
Architectural Services - School Business Administration Branch
ONTARIO DEPARTMENT OF EDUCATION

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OPENING WORKSHOP ADDRESS
by S.T. Orlowski

I would like to extend a very warm welcome to all participants of our workshop. It is our fourteenth workshop and the second one in this district.

Subjects for discussion have been chosen after consultation with representatives from the Public and Separate School Boards and generally speaking are focused on rehabilitation and renovation of existing schools to adapt them to the new educational requirements.

It might come to you as a surprise - after years of planning and building new, ultra modern schools - that we are going to talk presently about rehabilitation of old schools. Some of you might even say that it is cheaper to build a new building than modernize an old one. Even architect's fees are higher for alterations than for the planning of new structures. But, in spite of all the objections of people who would like to see new, modern, streamlined buildings dotting our landscape, we found that in some cases it is wiser to renovate than to build anew.

Our neighbours in the south, have been busy for some years adjusting, renovating and in general, making use of existing structures - offices, apartment buildings, factories - for educational needs. Our American friends are motivated largely by the lack of empty lots in places like New York, Chicago, Philadelphia or any other old and densely populated city where land is not available and the need for new schools has to be met by other means than erecting a new building.

We shall find out during our discussions what motivated the representatives of our school boards in suggesting that we should concentrate on this aspect in our future school planning.

Some points will have to be considered:

- In the first place, the demographical structure of our society is changing - the birth rate is sharply dropping and at the same time the life expectancy is longer. This means that we should take care not only of our young people but also create some programs for our adult population.

- Secondly - faced with the new technological advancement and requirements, we do not fire the old workers and hire the new ones, but we try to retrain the people. The same could be true of our schools.

- Thirdly, if we wanted to be modern and up-to-date all the time and in all the places, we would be busy demolishing everything every few years and I dare say we would never catch up with new developments. And the constant changes would only add up to frustration and dissatisfaction. It would

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affect our young people, suggesting that only new things are of any value and would only widen the gap between the old and new generation.

We all realize, that in the present system of economy, we are forced to change cars, all kinds of machinery and household gadgets every few years to keep production going. Sometimes we even suspect that things are not being made to last for this very reason. But, buildings are supposed to be of a more permanent nature.

People who like to travel, especially in Europe, marvel at some old buildings that were built many centuries ago. E.g. university buildings in Oxford or Cambridge. There are some buildings at Jagiellon University in Krakow, Poland, erected in 1364 still admired and being used.

Psychologists tell us that the environment influences the development of a man. The making of a man is a result of a complex interaction of genetic disposition and environmental circumstances. While we cannot do anything about the hereditary factor, although the scientists are already working towards means of controlling the genetics, it is within our reach to create a favourable environment. The environment of a human being from the moment of conception, through the formative years to the moment of old age affects us as much and perhaps more than the genetic structure.

Summarizing the above, we must consider seriously, not only budgetwise but also from the point of view of environment, the possibility of renovation and adaptation of an existing building versus demolishing the old one and erecting a new structure. We must consider the feasibility of our project, community use of the school, and also keep in mind that in order to have stability in our society we cannot sacrifice every tradition, we cannot change everything, we must draw the line somewhere.

I am not advocating to forsake all new projects, but I think that in many instances it is possible to modernize the building inside and even outside and in this way be progressive in our educational outlook yet at the same time be respectful of the traditions and cultural achievements of our forefathers.

I hope that this workshop will be interesting and beneficial to all of us since the topics were selected by this district and therefore, should be especially relevant to people in this area.

T'E FUTURE OF EDUCATION IN THE NIAGARA REGION
by H.B. Henderson

There is no doubt that a conference of this type must serve quite different ends depending on where it is held -- in the Metro area - Toronto, in the north, or in this section of the province. I have always believed that we have here in Region 6 elements of every type of society - the large city - Hamilton, with increasing suburbs and a city centre in need of renovation; the medium sized city with industrial and rural interests - St. Catharines; the smaller city with specialized industry - Welland, Niagara Falls and Port Colborne, in conjunction with a rural element whose small town population fluctuates depending on a number of factors. If those who are responsible for education are going to get any value from time spent here, we must be aware of the laboratory in which we work and of the diverse problems we face in maintaining effective school facilities for the future.

Two factors must be examined in order to decide on capital plans. These are the forecast of pupil population by age and the physical state of the schools existing in the school division. In looking at the population forecast, it is evident that the decreasing birth rate since 1964 is already having its effect on all systems. TABLE I shows the 1970 and 1971 populations and the forecast for 5 years. It is evident that in most cases, the enrolment will drop in the elementary schools and will remain fairly constant in secondary schools throughout the whole region, provided of course no other factor enters the calculations. Generally, provision of A category projects has stopped, except in expanding suburbs where transportation to downtown schools is impractical. TABLE II shows extent of building 1945 - 1969 by Province. TABLE III shows the cost graphically.

The state of school properties is quite another matter, and must be determined by the school board. For the most part, boards inherited buildings which were well built and maintained, because smaller school boards took genuine pride in their schools. However, in a number of cases, and for a number of reasons, schools exist in use which have substandard space or substandard quality, which are very old and do not respond to normal maintenance, or which were built for a purpose that is no longer required. It is my opinion that we must not allow the quality of buildings to deteriorate, but that each year the planned improvement must go on both to keep schools in repair and to provide the needs of present day education. Some boards have already instituted such a program and a considerable amount of money was set aside in the forecast for this purpose in 1972.

In looking at need for new building, it can be expected that despite decrease in total elementary pupil numbers, population movement within a divisional board area could necessitate building of new schools, where simple boundary changes within a family of schools will not settle the problem. It may be decided that transporting is not feasible. In such a case, the Department would be ready to assist. In the secondary school area, however, it does

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As school population drops in the elementary schools, rooms will become vacant. The wise use of this space for resource purposes, for expanding community use and for storage of educational equipment should be considered.

Many smaller schools do not have libraries and general purpose rooms for activities. Rather than build new accommodation, consideration is now being given by a number of boards to altering existing classrooms to provide these facilities.

The Regional Office supplies a consulting service in capital layout, and as you know, both Mr. Crawford and I are available to discuss proposals which you may be considering, whether they be within or without your forecast. One thing however, is quite definite, the funds allocated by Capital Aid are the limits within which we must work. TABLE IV shows the building done in Region 6 by divisions 1970 - 71. TABLE V shows the accumulation of debt by municipalities and boards.

But if I am to deal with my topic in some depth, there are a number of factors as well as capital outlay which must be considered, all of which will affect the thinking in this direction.

USE OF BUILDINGS - Elementary

Although the loading of rooms is 35:1 in order to qualify for new space, an examination of the use of a school often indicates that conditions are not as cramped as they look.

Let us consider a 10 room school with library and general purpose room at primary-junior level (approximately Grades 1 - 6). The school is fully loaded at 350 pupils, since we do not load the first general purpose room or the library. This gives 12 instruction areas, and with the principal would likely rate a staff of 13 or a ratio of 27:1 which is not unusual.

By a little thoughtful grouping, the principal could maintain most groups below thirty per instructor, and by timetabling himself into a couple of classes per day, could arrange for spare time for teachers throughout the week. TABLE VI (a)

You may say that as the size of the school increases, the use of space will be more difficult. However, a larger school would likely have a special

education class or two, loaded below 20 and a large resource centre.

I realize that every situation has extenuating circumstances - and you have no doubt heard of them all, but I believe I have used realistic figures and have indicated the kind of thinking that produces ceilings. The introduction of factors by which the ceiling may be exceeded is, of course, in recognition of the circumstances mentioned above.

USE OF BUILDINGS - Secondary

As a secondary school approaches its rated capacity (30 per classroom and 20 per shop and home economics rooms) it is interesting to look at the pupil per teaching area as well as the pupil per teacher ratio. Suppose we have a school of 1280 with 74 teachers including principal and vice-principal. Although the pupil teacher ratio is 18:1 we usually find the pupil per teaching area ratio to be higher, depending on how full the school is, e.g. population - 1280, teaching areas - 51, pupil/area ratio - 25:1.

An examination of the use of staff might show this situation. TABLE VI (b)

It can be seen then that a class of fewer than 24 requires a swing above 24 to compensate. With wide choice of options, the principal will have a very difficult time in keeping some classes under 30 with this kind of situation. Also the closer this figure 24 comes to the pupils per teaching space, i.e. 25, the more effectively is the secondary school plant being used by the principal.

With salaries the major part of the cost, it is also evident that large savings can be made only in affecting one of the three areas mentioned above. The board may 1) decrease the overall pupil teacher ratio (17) i.e. hire more teachers; TABLE VII 2) the teachers may spend more time with pupils; or 3) the non-teaching staff may be reduced. The chart shows a viable kind of situation, since the salary bill here would be, using average salary of $11,900. TABLE VI (c)

THE CURRICULUM

We all agree that the provision of buildings, administrators and teachers is merely a means of making more effective the relationship between teacher and student, because it is only there that we see any payoff for the tremendous amounts of money spent. I believe that the principal more and more must assume the key position in bringing about an accountable system in our schools.

In the primary-junior area the principal should be the chief educational consultant, knowledgeable about process of education and a constant resource to those developing the curriculum. The P_1J_1 revision of curriculum is in its

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ea the principal should be the chief educational ble about process of education and a constant resource curriculum. The P_1J_1 revision of curriculum is in its second year, and a 50 person committee is at work sifting the results of thousands of hours of work by teachers, supervisors, trustees and parents. When the responses are converted into guidelines, the principal will be able, with his staff, to use it to develop, over a number of years, courses which meet his pupils requirements. He will find in many areas that very little change is necessary; in others he may find he and his staff will need to re-think what they are doing.

In the Intermediate area, the review of curriculum will begin this Fall. The principal will need to continue his liaison with the early grades of secondary school and may involve the department head there as a consultant in building his courses. I would predict that what is now Grades 7 - 10 will become a time in a child's life when he refines the skills he has acquired in junior school, and will sample, without fear of failure, a number of subjects of his choice.

In the senior school or years 3, 4, and 5, of secondary schools, I can see side by side courses which test the best intellects, where the young person has committed himself to a discipline with a view to professional training; courses where the young person will be able to expand his experience with a view to entering the working force for further training, and perhaps courses of intermediate difficulty for those who intend to pursue a less stringent post-secondary education in a technological or trade school. It is essential that all types of courses be offered, within the capabilities of the school, and that our secondary schools at all levels maintain high expectations of those attending.

The fact that we have a much broader cross section in secondary schools now precludes them being a university entrance school or a training school for industry, as they have been in the past.

The principal has built-in consultants in the persons of department heads. His task will be to offer leadership in course development, provide resources as far as possible and be ready to encourage and assist teachers as they deal with a younger generation who are not as accepting or tolerant as the previous ones.

In all cases, the parent must be kept aware of the progress of the school, of change in interest and procedure. Some principals may find school committees useful, others may involve parents in the school as volunteers or as students, as the case may be.

The supervisory staff and department consultants will be back-up and support to the principal. In some divisions the central board office may be able to supply a great deal of resource material for use in the schools; in others the material may be prepared by the united efforts of a family of schools or of an individual school. In all cases, however, the support staff must not

become a series of hurdles (see O.S.S.T.F. The Bulletin - February 1972 - The Administrator by Terry Taller) to be jumped by those developing courses, but rather an understanding and ready facilitator as individual school staffs realize the freedom and the burden of less prescriptive courses.

Principals and staff must, however, not dissipate their efforts in resisting some parameters: 1) The fiscal ones which the public is setting through the government, and which have been discussed in some detail earlier. The range of increase has to be stopped. 2) The Minister is still, and will still issue guidelines, which are very flexible, but which do restrict teachers to certain directions. For those who do not want to remain inside these limits, course approval is available, provided the outline submitted meets standards set by the Curriculum Branch.

To those who say - the Department has allowed teachers to do as they like, I submit that this is a misunderstanding and I hope that I have shown why.

To those who say - the Department is too restrictive in fiscal payments, I can only say that an equitable way had to be worked out to stem the rate of spending.

To those who wish to pursue some of the issues raised here - we have two days and after that the Regional Office is at your service.

| | | |

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TABLE I

ENROLMENT PROJECTION FOR REGION 6

Based on Publicly Supported Elementary & Secondary Schools in the Province of Ontario

Board	Enrolment Actual 1970	1971	Projected 1972	1973	1974	1975	1978	1981
Haldimand County B. of E.								
Elementary	5,726	5,465	5,213	4,973	4,744	4,526	4,233	4,300
Secondary	3,014	3,037	3,034	3,020	3,011	3,000	2,967	2,957
Haldimand-Norfolk RCSS								
Elementary	2,888	2,816	2,745	2,676	2,609	2,543	2,485	2,599
Hamilton B. of E.								
Elementary	35,257	34,178	33,118	32,091	31,096	30,132	29,619	30,981
Secondary	19,725	19,705	19,625	19,565	19,485	19,405	19,171	19,076
Lincoln County B. of E.								
Elementary	22,942	22,648	22,218	21,795	21,380	21,016	20,658	21,608
Secondary	11,984	12,443	12,430	12,380	12,342	12,292	12,144	12,083
Lincoln County RCSS								
Elementary	8,341	8,441	8,280	8,122	7,967	7,871	7,737	8,092
Niagara South B. of E.								
Elementary	24,292	24,313	23,851	23,397	22,952	22,561	22,172	23,197
Secondary	14,903	14,945	14,930	14,870	14,825	14,765	14,587	14,514
Norfolk County B. of E.								
Elementary	8,195	7,986	7,826	7,677	7,531	7,402	7,276	7,610
Secondary	4,103	4,312	4,307	4,289	4,276	4,258	4,206	4,184
Welland County RCSS								
Elementary	12,318	12,292	12,046	11,817	11,592	11,394	11,200	11,715
Wentworth County B. of E.								
Elementary	15,879	15,413	15,104	14,817	14,535	14,287	14,044	14,690
Secondary	7,009	7,281	7,283	7,253	7,231	7,202	7,115	7,079
Wentworth County RCCS								
Elementary	23,527	23,927	23,448	23,002	22,564	22,180	21,802	22,804

Provincial Percentage changes applied to 1971 figures.
Divisional Boards could refine by an actual grade count.

TABLE II

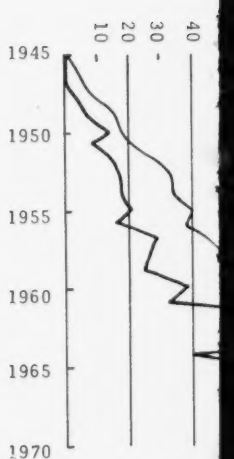
TABLE 3-5

NEW SCHOOLS AND ADDITIONS BUILT IN ONTARIO, 1945 - 69

YEAR	TOTAL				ELEMENTARY SCHOOLS		
	NO. OF PROJECTS	ADDITIONAL PUPIL PLACES	ESTIMATED COST IN $ THOUSANDS	TOTAL			
1945				1,256	53	4,200	1,200
1946				2,903	89	6,500	2,600
1947				6,639	132	11,400	6,100
1948				15,370	155	18,400	10,900
1949				23,977	190	22,500	16,400
1950				30,642	198	27,300	17,500
1951				29,931	241	31,000	21,300
1952				43,840	217	40,740	29,600
1953				50,091	303	45,675	33,200
1954				51,389	396	57,400	33,700
1955				59,517	425	63,000	39,300
1956				54,985	379	60,100	37,700
1957				73,159	417	64,480	43,950
1958				77,166	451	74,735	51,085
1959				81,865	427	73,605	56,672
1960				99,107	529	78,750	59,938
1961				85,242	452	66,150	53,301
1962				132,818	395	58,500	50,704
1963				240,318	412	66,730	58,707
1964				111,160	457	77,385	71,145
1965				144,078	480	84,280	84,497
1966				242,800	471	82,145	92,707
1967				224,657	330	72,800	91,117
1968				216,367	355	77,742	114,417
1969				208,846	333	67,374	115,395

SECONDARY SCHOOLS

2	210	56
9	670	303
19	1,490	539
27	4,240	4,470
19	4,810	7,577
29	8,850	13,142
29	7,020	8,631
31	10,240	14,240
43	10,750	16,891
58	13,880	17,689
56	14,750	20,217
46	14,080	17,285
66	22,890	29,209
58	18,750	26,081
71	18.510	25,193
72	26.480	39,169
62	19.520	31,941
105	36.730	82,114
174	66.650	181,611
46	17,430	40,023
69	16,972	59,581
116	55,975	150,093
108	40.750	133,540
56	28,457	101,950
56	26,472	93,451



	210	56
	670	303
	1,490	539
	4,240	4,470
	4,810	7,577
	8,850	13,142
	7,020	8,631
	10,240	14,240
	10,750	16,891
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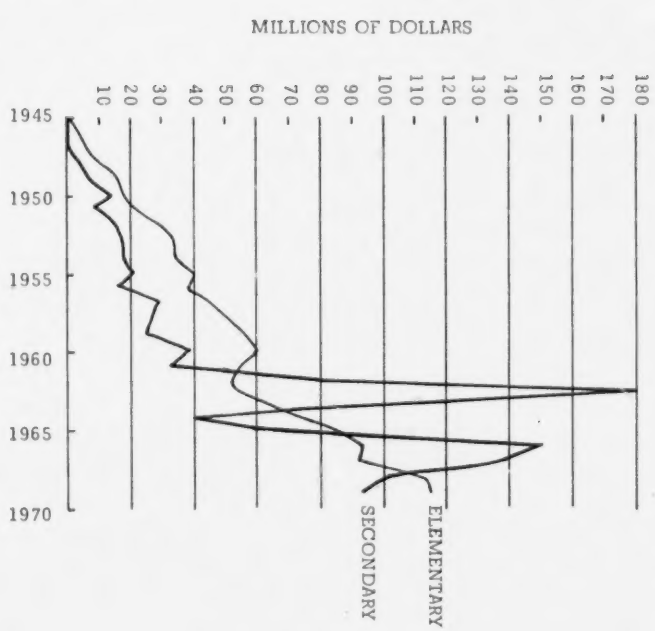
	18,750	26,081
	18,510	25,193
	26,480	39,169
	19,520	31,941
	36,730	82,114
	66,650	181,611
	17,430	40,023
	16,972	59,581
	55,975	150,093
	40,750	133,540
	28,457	101,950
	26,472	93,451

TABLE III

CHART 3 - 1

Estimated Cost of School Building Projects in Ontario, 1945 - 69



CAPITAL BUILDING SUMMARY

Board	1970 Cost	1970 Pupil Places	1971 Cost	1971 Pupil Places
Haldimand County B. of E.				
Secondary	$ 159,057	40	-	-
Elementary	-	-	$ 224,954	40
Haldimand-Norfolk RCSSB				
Elementary	$ 229,115	70	$ 203,229	110
Hamilton B. of E.				
Secondary	$2,357,498	230	$ 635,147	120
Elementary	$2,705,713	1839	$ 762,097	420
Lincoln County B. of E.				
Secondary	$ 8,963	35	-	-
Elementary	$ 975,234	600	$ 254,145	430
Lincoln County RCSSB				
Elementary	$ 662,807	845 8 portables	$ 18,356	35
Niagara South B. of E.				
Secondary	$2,172,290	580	$ 372,785	30
Elementary	$ 316,445	110	$ 522,677	301
Norfolk County B. of E.				
Secondary	-	-	-	-
Elementary	$ 376,226	350	$ 277,632	110
Welland County RCSSB				
Elementary	$ 17,859	70	$ 162,219	35
Wentworth County B. of E.				
Secondary	$ 14,000	70	$ 6,397	-
Elementary	$ 36,960	140	$ 20,824	-
Wentworth County RCSSB				
Elementary	$2,270,420	1411	$ 326,259	226

SOURCE: THE ONTARIO COMMITTEE ON TAXATION, ONTARIO DEPARTMENT OF MUNICIPAL AFFAIRS, ANNUAL REPORT OF MUNICIPAL STATISTICS.

Secondary	$ 139,057	40	-	-
Elementary	-	-	$ 224,954	40
Haldimand-Norfolk RCSSB				
Elementary	$ 229,115	70	$ 203,229	110
Hamilton B. of E.				
Secondary	$2,357,498	230	$ 635,147	120
Elementary	$2,705,713	1839	$ 762,097	420
Lincoln County B. of E.				
Secondary	$ 8,963	35	-	-
Elementary	$ 975,234	600	$ 254,145	430
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Norfolk County B. of E.				
Secondary	-	-	-	-
Elementary	$ 376,226	350	$ 277,632	110
Welland County RCSSB				
Elementary	$ 17,859	70	$ 162,219	35
Wentworth County B. of E.				
Secondary	$ 14,000	70	$ 6,397	-
Elementary	$ 36,960	140	$ 20,824	-
Wentworth County RCSSB				
Elementary	$2,270,420	1411	$ 326,259	226

SOURCE: THE ONTARIO COMMITTEE ON TAXATION, ONTARIO DEPARTMENT OF MUNICIPAL AFFAIRS, ANNUAL REPORT OF MUNICIPAL STATISTICS.

TABLE V

TABLE 7 - 36

MUNICIPAL AND SCHOOL BOARD DEBT, 1945 - 67

YEAR	
1945	
1951	
1955	
1960	
1961	
1962	
1963	
1964	
1965	
1966	
1967	

AMOUNT (IN $ THOUSANDS)

GROSS DEBT

MUNICIPAL	SCHOOL BOARD	TOTAL
123,954	43,042	166,996
197,141	120,916	318,057
291,513	238,284	529,797
611,896	514,249	1,126,145
670,539	555,990	1,226,529
751,595	586,761	1,338,356
828,320	629,493	1,457,813
951,802	671,192	1,622,994
1,018,876	697,495	1,716,371
1,074,888	824,641	1,899,529
1,165,166	957,712	2,122,878

INDEX (1939 = 100)

GROSS DEBT

123,954	43,042	166,996
197,141	120,916	318,057
291,513	238,284	529,797
611,896	514,249	1,126,145
670,539	555,990	1,226,529
751,595	586,761	1,338,356
828,320	629,493	1,457,813
951,802	671,192	1,622,994
1,018,876	697,495	1,716,371
1,074,888	824,641	1,899,529
1,165,166	957,712	2,122,878

INDEX (1939 = 100)

GROSS DEBT

MUNICIPAL	SCHOOL BOARD	TOTAL
57.6	72.4	60.8
91.5	203.2	115.7
135.4	400.5	192.7
284.1	864.3	409.7
311.4	934.5	446.2
349.0	986.2	486.9
384.6	1,058.0	530.4
442.0	1,128.1	590.5
473.1	1,172.3	
499.1	1,386.0	
541.0	1,609.6	

TABLE VI (a)

Costs - 13 teachers @$9,000 = $117,000

If instruction cost is 65%, then cost of operating is $117,000 x $\frac{100}{65}$ = $180,000

Cost per pupil = $\frac{180,000}{350}$ = $520 (approx.)

This is well within the ceiling and allows $75.00 per pupil or $26,000 on the 1972 ceiling and $38,500 on the 1973 ceiling, still based on average salary of $9,000.

TABLE VI (b)

Pupils - 1280 Pupil-teacher ratio 17.3
Staff - 74
Non-teaching - 5
69 i.e. principal, v-principal, guidance teachers meet pupils on scheduled basis

Total time of teaching staff meeting pupils is 80% of their school day or an effective reduction of staff meeting pupils of 69 x .80 = 55

Teaching pupil teacher ration = $\frac{1280}{55}$ = 23.4

TABLE VI (c)

$11,900 x 74 = $880,000

Since 65% of cost is salary, total is $880,000 x $\frac{100}{65}$

= $1,350,000

Cost/pupil = $\frac{\$1,350,000}{1280}$ = $1,060

which is 40 x 1280 = $51,000 under 1972 ceiling
and 70 x 1280 = $79,500 under 1973 ceiling

SOURCE: REPORTS OF THE MINISTER OF EDUCATION OF ONTARIO

1963 - 4	29.6	31.9		21.2
1964 - 5	29.4	31.4		20.6
1965 - 6	29.0	30.4		19.3
1966 - 7	28.3	29.5		18.0
1967 - 8	27.?	28.2		17.1
1968 - 9	26.0	26.7		16.6
1969 - 70	25.2	25.5		16.4

BLE VI (a)

= $117,000

n cost of

= $180,000

= $520 (approx.)

and allows $75.00 per pupil or $26,000 on
on the 1973 ceiling, still based on average

BLE VI (b)

Pupil-teacher ratio 17.3

i.e. principal, v-principal, guidance
teachers meet pupils on scheduled basis

eting pupils is 80% of their school day or an
eting pupils of 69 x .80 = 55

= $\frac{1280}{55}$ = 23.4

BLE VI (c)

00

otal is $880,000 x $\frac{100}{65}$

= $1,350,000

= $1,060

0 under 1972 ceiling
0 under 1973 ceiling

TABLE VII

TABLE 6 - 2

RATIO OF PUPILS TO TEACHERS IN ONTARIO SCHOOLS, 1945 - 70

YEAR	ELEMENTARY SCHOOLS		SECONDARY SCHOOLS
	PUBLIC	ROMAN CATHOLIC SEPARATE	
1945 - 6	29.9	32.2	25.2
1950 - 1	29.3	32.4	22.6
1955 - 6	29.1	31.0	21.7
1960 - 1	30.0	33.4	22.9
1961 - 2	29.8	32.9	23.3
1962 - 3	29.8	32.6	22.2
1963 - 4	29.6	31.9	21.2
1964 - 5	29.4	31.4	20.6
1965 - 6	29.0	30.4	19.3
1966 - 7	28.3	29.5	18.0
1967 - 8	27.3	28.2	17.1
1968 - 9	26.0	26.7	16.6
1969 - 70	25.2	25.5	16.4

SOURCE: REPORTS OF THE MINISTER OF EDUCATION OF ONTARIO

TABLE VII

CHART 6 - 2

PUPIL-TEACHER RATIOS IN PUBLIC ELEMENTARY, ROMAN CATHOLIC SEPARATE, AND SECONDARY SCHOOLS, 1945 - 70

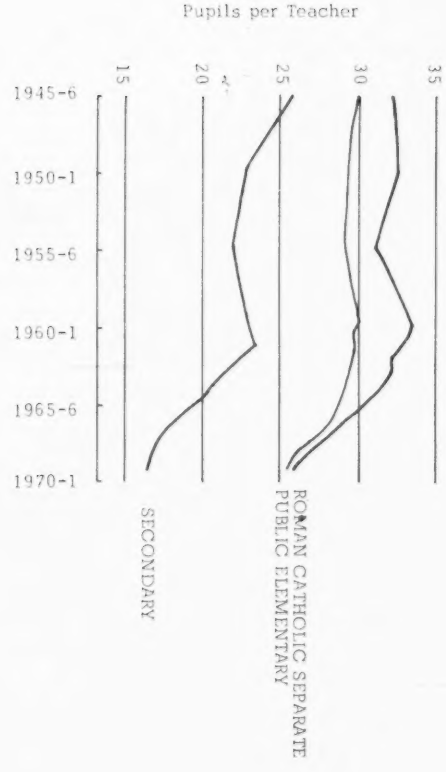
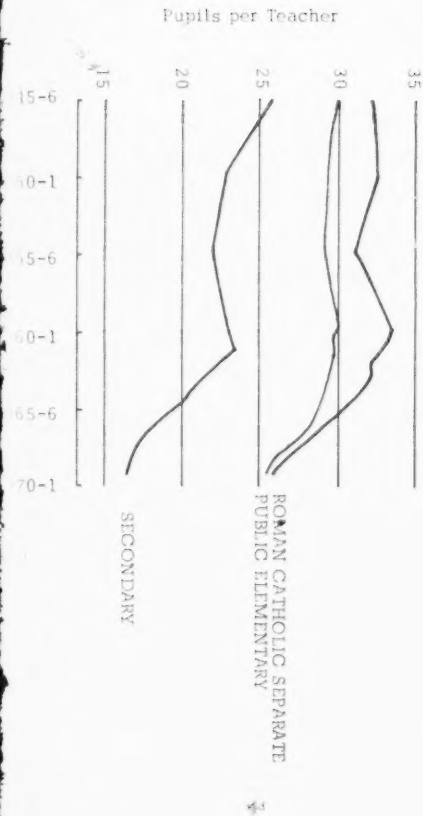


TABLE VII

CHART 6 - 2

PUPIL-TEACHER RATIOS IN PUBLIC ELEMENTARY, ROMAN CATHOLIC SEPARATE, AND SECONDARY SCHOOLS, 1945 - 70



CRITERIA FOR PLANNING - I
by W.A. Tindale

Perhaps some of you belong to the Council for Educational Facility Planners, an affiliate of the NEA. The most recent issue of their bi-monthly publication, called the CEFP Journal, had an interesting article with an intriguing title "The Perils of Planning". This is probably intended to be 50% in joke and perhaps 85% in earnest, but I thought that their illustration might be a suitable starting point this morning. The writer says that choosing the criteria and deciding on a plan are relatively easy but getting agreement on the plan is the real peril. As participatory democracy is the way of life, the school planner must involve many other people but he must employ a high degree of low cunning to get his plan accepted. He must steer his course through perils and past many rocks. At the first meeting, therefore, he must have a loosely structured agenda to give everyone a chance to make his speech. But the first rock he must circumvent is the Sphinx, who meeting after meeting will say nothing. Then at the final meeting, when the planner is looking for perfect agreement, the Sphinx will protest that his opinion has never been requested, complain of undemocratic procedures, and insist on filing a minority report. The answer is confrontation. The planner must flatter the Sphinx into taking a position early in the meeting.

A second rock is the Foot Dragger. He talks but wants nothing new. He feels that the "status quo" should be maintained. He uses the all-powerful "They" technique. He says for example "They would never let us have the additional staff necessary to carry out these changes". What he means of course is "Thou shalt not bring in any new troublemakers to my department".

The best defence for a planner here is to attack first. Make an opening statement using "They", for example "They have assigned me to this planning task and they have indicated a willingness to support planning activities". Say this of course whether you have this authority or not.

Then you may run into Self-Fulfilling Prophesiers. These people know from experience that nothing suggested will work. They are not really opposed to change but they are opposed to accepting anybody else's ideas. The planner is ready if he agrees with them that a suggestion won't work, and asks for their suggestions concerning how the idea might be made to work. The planner must convince the prophesier that he did indeed originate the idea. When the planner finally has his plan through committee, he may run into a final bottleneck - a nay-sayer at the top. The planner realizes he is merely a Self-Fulfilling Prophesier in administrative clothing and treats him in the same way. The planner implies that what is proposed now is based on an idea the top man had promoted on a previous project. In other words, he really thought of it himself, and so the Planner reaches home port.

Although we may recognize certain features of the low cunning illustrated here, I am sorry that the whole article criticizes the idea of involvement and suggests that only one planner is essential. Is listing the criteria enough?

Another article in School Progress, March 1972 entitled "What's wrong with school library planning?" is revealing. It is written by a librarian.

Sketches A & B are intended to illustrate mistakes made by architects who were allowed to emphasize non-functional but visually attractive aspects of design.

Sketch A: (1) Two-level library: problems of control; unnecessary staff costs carrying books up and down.

(2) Round library: impossible to plan book stacks; waste space

Sketch B: "Open" library

(1) Noise and distraction; traffic patterns

(2) Control system lacking; charging desk

Sketch C: A renovation; things to be included were listed; crowded; poor visual control; office is an obstacle course.

Conclusion:

Everyone thinks he is an expert or else that designing libraries is easy. This opinion is held by school librarians, architects, principals and trustees. More is necessary than listing "things I want".

In light of these two articles may I suggest that we need to consider not only the criteria for buildings but how to make these criteria available and understandable. May I therefore outline what we are doing, and what we are hoping to do, in planning the Hamilton Elementary Schools.

1. Educational Specifications

These must be drawn up by the academic panel - a new set for each school. They should include:

1) Educational philosophy: the educational climate we are trying to provide

2) Community characteristics and overall plant requirements

3) Relationship between Board of Education policies and building requirements - e.g. community use of schools

4) Relationship of the site to edu

5) General requirements - ages, team teaching, future changes understanding of all this would visit several schools in sessio

2. The Team

Sketch plans and detailed plans a the Property Committee of our Boa working team consists of one or t the appointed Architect, and an Ac is my job to relay the opinion of t (We also feel that the parents of t managed this yet). This is done Architects", a document written u the specific requests and advice the presentation of the Educationa follow line drawings, sketch plan all of my committees are involved which can result in translating th the general criteria that I would li

General

i) Traffic Control
Entrances
Lockers or hang
Washrooms
Night Use
Library location

ii) Climate Control
1. Heating
2. Ventilating
3. Air Conditio

iii) Classroom teach
Windows - mini
view
vand
Instant blackout
Tack boards - a
Chalkboards
Mounted screen
Outlets

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academic panel - a new set for each school.

educational climate we are trying to provide

nd overall plant requirements

of Education policies and building requirements -
ols

4) Relationship of the site to educational program

5) General requirements - ages, grades, special rooms, open area, team teaching, future changes or expansion etc. (A complete understanding of all this would involve taking the architect to visit several schools in session).

2. The Team

Sketch plans and detailed plans are finally studied and approved by the Property Committee of our Board of Education but on the way up the working team consists of one or two members of our Building Department, the appointed Architect, and an Academic official, namely myself. It is my job to relay the opinion of teachers, principals and subject supervisors. (We also feel that the parents of the area should be involved but we haven't managed this yet). This is done first by the "Manual of Instruction to Architects", a document written up by the Building Department in light of the specific requests and advice of the academic and building staff. After the presentation of the Educational Specifications to the architect, there follow line drawings, sketch plans and detailed drawings. At each stage all of my committees are involved. I think it is this constant interplay which can result in translating the criteria into the finished building. Among the general criteria that I would like to present at this time are:

General Criteria

i) Traffic Control
Entrances
Lockers or hanging areas
Washrooms
Night Use
Library location

ii) Climate Control
1. Heating
2. Ventilating
3. Air Conditioning?

iii) Classroom teacher priorities:
Windows - minimal
view panel
vandal proof
Instant blackout - sliding tack boards
Tack boards - amount, location
Chalkboards
Mounted screen
Cutlets

iv) The Big Room (Open Concept)
Size
4 classes
Carpet
Acoustical treatment
No dividers
Sinks and tiled area
Adjacent classrooms

v) Special Rooms

vi) Play Assembly Room
Gym
Sectional stage
The "Big Rooms" (Open Concept)

vii) Administration
Office
Guidance (Conference rooms)
Supply room

CRITERIA FOR THE PLANNING OF SCHOOL FACILITIES - II
by J.L. Davies

It is unlikely that any period in history has had as much emphasis on formal education as the last decade. Sky-rocketing technology, "Sputnik", atomic power, world skrinkage caused by sensational advances in audio-visual communications and transportation, and competitive economic and social systems have all contributed to the development of strong nationalistic and survival instincts in many parts of the world.

With jobs rapidaly disappearing, more job restrictions developing, and a technologically oriented society offering few, if any alternatives, mass education for better or for worse is now the name of the game.

If education is to be more than a holding tank to keep young people out of the labour market, then the additional time spent in formal education must contribute to the intellectual, moral and social maturity of the individual.

With the heritage of World War II in the recent past, the present generation is experiencing the threat of push button nuclear warfare, the impersonalization of the individual, and the pollution of his environment. Against this background, is it not understandable that we have created the "now" generation?

More sophisticated, more knowledgeable, more provocative, more challenging than his predecessors, and encompassing a much wider range of aptitudes and abilities, the student of today has an acute awareness of the present. He will not accept, nor should he, 'pitcher and jug' education. While a thirst for knowledge and a desire to excel are still characteristic of much of the student body, revelancy, as he sees it, and involvement are two of his primary objectives.

This is the kind of student for whom today's designer of schools must plan. Caught in an economic squeeze and without a crystal ball, he must meet the needs of today, yet include a flexibility of design to somehow meet the unknown tomorrows. In spite of these frustrations, his role is challenging, stimulating and rewarding.

Relationships and Attitudes:

(a) Framework based on mutual respect between the educational and business panels of the Board and the architect is an obvious necessity.

(b) The educator should be responsible for the educational function of the building. The business personnel with the form, materials and utilities, with all participants overlapping as common sense dictates.

(c) Open mindedness, creativity, and the ability to recognize good ideas regardless of their source, all contribute to good design.

(d) A precaution: "All change is not progress".

Involvement:

(a) Theoretically, involvement of a broad cross-section of a community may be desirable. Certainly the ideas of principals, students, and teachers should be obtained. The growing public use of school facilities increases the need to include public representatives.

(b) Realistically, caught between the squeeze of "involvement" on one side, and deadlines, and mounting costs on the other, school planners understandably, although not necessarily correctly, are reluctant to increase the "number of cooks to brew the broth". Undoubtedly, involvement stimulates interest, the generation of ideas, and the satisfaction of being part of the team. The degree of involvement is the question to be resolved.

Flexibility:

Planning today for tomorrow's schools requires a flexibility in design to change with ease the function and size of areas:

(i) to meet immediate needs on a daily basis (i.e., sliding doors, etc.).
(ii) to meet needs on a longer term basis (i.e., portable walls, etc.).
(iii) to make more sweeping changes for unforeseen educational concepts with a minimum of restriction by built-in obstacles. (Clustering utilities, non-bearing expendable walls.)

Follow-up:

The need for follow-up and evaluation of any structure is self-evident. This is probably the area in which the involvement of more participants would serve a useful purpose.

Above all...

...the facilities are secondary to the human resources using them. Good teaching can occur independently of the facilities, but good facilities can enhance good teaching.

COST = FORM + FUNCTION

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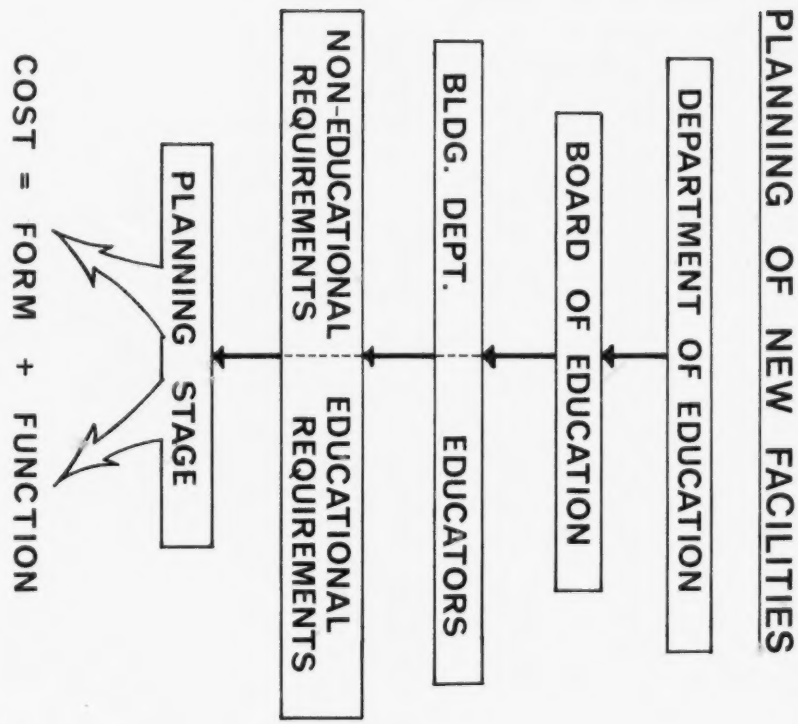
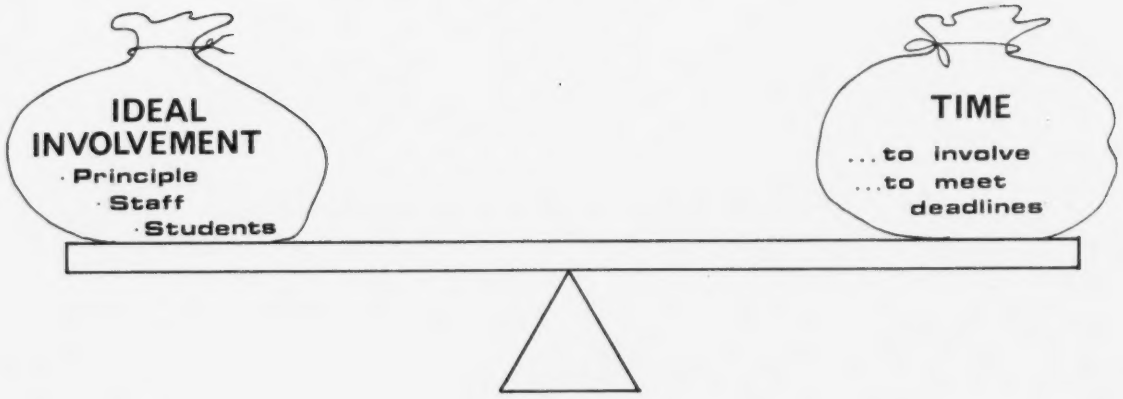
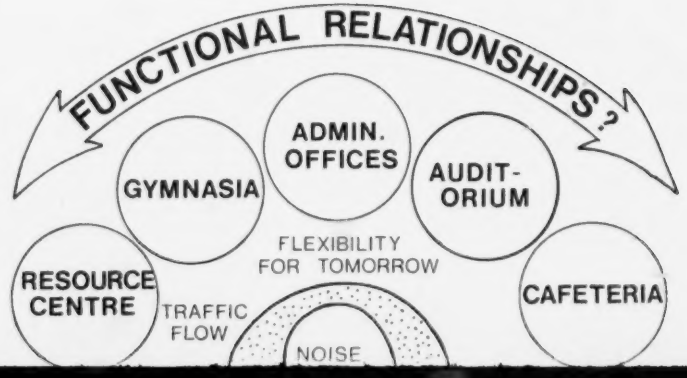


PLANNING


IDEAL INVOLVEMENT
· Principle
· Staff
· Students
TIME
...to involve
...to meet deadlines


FUNCTIONAL RELATIONSHIPS.?
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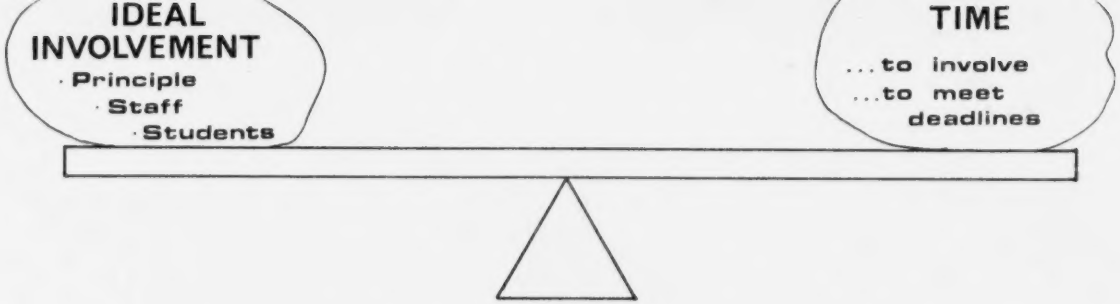
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CAFETERIA
NOISE LEVELS
COUNSEL SERVICES
TECHNICAL
ACCESSIBILITY BY STUDENTS AND PUBLIC
DISTRIBUTION OF STUDENT POPULATION
SCHOOL PLANT
SCIENCE LABS
CONGESTION
OTHER ACADEMIC AREAS
BUSINESS EDUCATION FACILITIES
CAMPUS PARKING

CRITERIA FOR PLANNING - III
by S. M. Roscoe

Webster's Dictionary defines "criteria" as a principle taken as a standard (in judging) or planning of schools. To assist in isolating this aspect of education, I have prepared a brief review of 1. the Past, 2. the Present, 3. the Future.

1. a) Well the Past, early 50's belonged to the architects - the period directly after the red school house, expanding economy and budding families. The first criteria was that the architect had to be an expert, quote Department of Education glib dimensions of 24 x 32 classroom, 24 x 36 lab, 24 x 40 home ec, 39 x 60 for single gym, etc. Future expansion if not shown on the sketch drawings was enough to have your fee reduced.
The Result - the architect repeated an old system of separate boxes, corridor connected; with the same mistakes of the past repeated.

b) The second criteria established in the later 50's was a determined effort by the architect team to improve on the building product. Principals, teachers and always the janitor were consulted.
The Result - more trouble - new principals, teachers and janitors took over and not much of the original criteria was accepted. Fast changing methods, new materials, teaching principles, outmoded the original criteria.

c) The third criteria of the early 60's belongs to the Board of Education and their staff. They had become sophisticated in the art of building design. They had been taught how to make mistakes and they were now ready to make their own. The school boards had extensive criteria prepared - do's and don't's, details of cupboards, shop layouts, automatic controls. They suddenly began to consider in-house architects, stock plans, standards.
The Result - spiralling costs (blamed on architects), EFL, SEF foundation research, extensive travel by architects and board members, new teaching methods, new hardware, new plan concepts.

d) The New Criteria of research, exploration, new teaching methods demanded
   a) more flexibility
   b) prefabrication and systems buildings
   c) teaching variety
   d) less teacher-class relationship, more freedom and individual study, less teacher-student ratio
   e) air conditioning
   f) less detail
   g) less cost

The Result - better schools, better tea
jeans and pot smokers.

2. Present Criteria

   a) no new kids
   b) no new teachers
   c) no new schools
   d) no criteria

3. Recommended Future Criteria

   a) The Board and staff should establis
      guidelines of:
      1. location
      2. student number and popula
         growth
      3. program of studies based
         research of geographic loc
         commerce
      4. teaching policies
      5. realistic budget
      6. appointment of Ad Hoc (pl
         architect team

   b) The Ad Hoc Committee should be c

      a) board member
      b) department heads of variou
      c) engineering and maintenan
      d) student representation

   They should prepare a criteria for plann
      1. establishing priorities of f
         architect selection of func
      2. clearly describe years cur
         methods and a list of equi
      3. visit several reasonably hi
         examination and reference
      4. do not plan areas or detail
         the architect

4. Describe standards required accept
   future maintenance and economy.

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student ratio

The Result - better schools, better teachers, better students, long hair, jeans and pot smokers.

2. Present Criteria

a) no new kids
b) no new teachers
c) no new schools
d) no criteria

3. Recommended Future Criteria

a) The Board and staff should establish the broad principles and set guidelines of:
   1. location
   2. student number and population expansion expected - anticipated growth
   3. program of studies based on general studies and policy, research of geographic location and influence of industry and commerce
   4. teaching policies
   5. realistic budget
   6. appointment of Ad Hoc (planning committee) to work with architect team

b) The Ad Hoc Committee should be composed of

   a) board member
   b) department heads of various disciplines
   c) engineering and maintenance
   d) student representation

They should prepare a criteria for planning by
   1. establishing priorities of functions required, to permit the architect selection of functions relative to established budget
   2. clearly describe years curriculum teaching aims, objectives, methods and a list of equipment needed where possible
   3. visit several reasonably high standard schools for visual examination and reference
   4. do not plan areas or details as this only constricts and misleads the architect

4. Describe standards required acceptable by the Board for mass purchase, future maintenance and economy.

CRITERIA FOR PLANNING - IV
by Dr. A. Aboul-Khair

Introduction

Change is the most consistent factor in education today. From modern mathematics to modular scheduling, the curriculum, constant staff organization, methodology and buildings for education are all undergoing reappraisal, experimentation and change. A mere listing of innovations reveals the magnitude, if not the quality of this educational ferment.

Many of these innovations imply radical modifications in the planning and design of schools, some of the innovations are themselves new ways to create the educational environment.

Those responsible for building schools including boards of education, superintendents, program consultants, planners, consultants, architects, engineers and contractors require advice, guidance and co-operation in providing schools which will not only meet basic educational needs, but respect appropriate current innovations and to some degree, anticipate the future.

Co-operation of all concerned parties is necessary from a very early stage of planning the school to completion of the building.

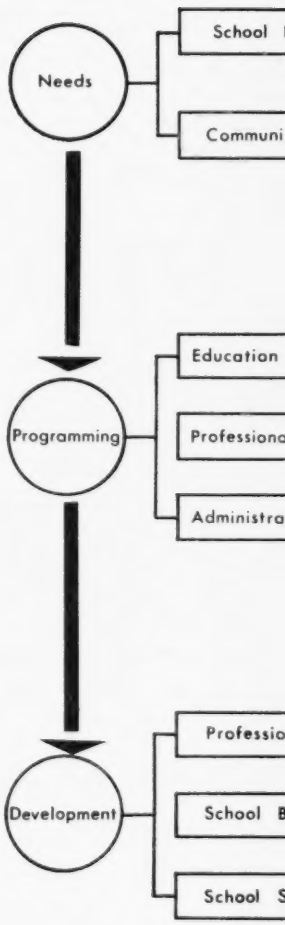
Co-operative Planning: Educational, Architectural and Financial

The planning of any new building should be a co-operative effort of the educators, the administrator, the professional and the users.

However, the broad areas of responsibility in planning can be assigned to three groups of people:

A. The Education group - responsible for the educational aspects
B. The Professional group - responsible for the technical aspects of the project
C. The Administrative group - responsible for establishing the need for school buildings as well as financial arrangements.

Together these groups must balance the desirable goals set forth in the educational specifications against the limitations of the site and the budget. While each group will explore its own area of responsibility with many other subgroups, committees and individual experts and consultants, there are definite points at which co-ordination is necessary for proper evaluation of progress and accomplishments.



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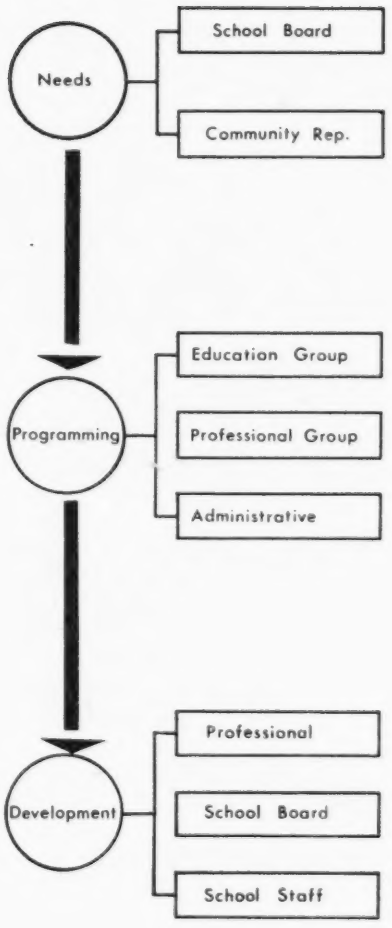


It is obvious that we build a school when we are sure there is a need for one. Such needs for a school may arise as a result of various circumstances such as:
- to replace an existing school for safety reasons, as well as when the facility ceases to fulfill its function or becomes outdated.
- to meet enrolment increases due to
  . natural reasons (birth rate)
  . shift in population
  . new housing development

- Educational specifications
- School site location and size
- Space requirements and relationship
- Administrative and financial arrangement
- Budget limitation

- Planning Phase - in which major ideas are worked out and preliminary drawings are agreed upon.
- Intermediate Phase - including the preparation, review and acceptance of final drawings. The selection of contracts for bids and the awarding of the contract.
- Construction Phase - up to the completion of the building.

The Need

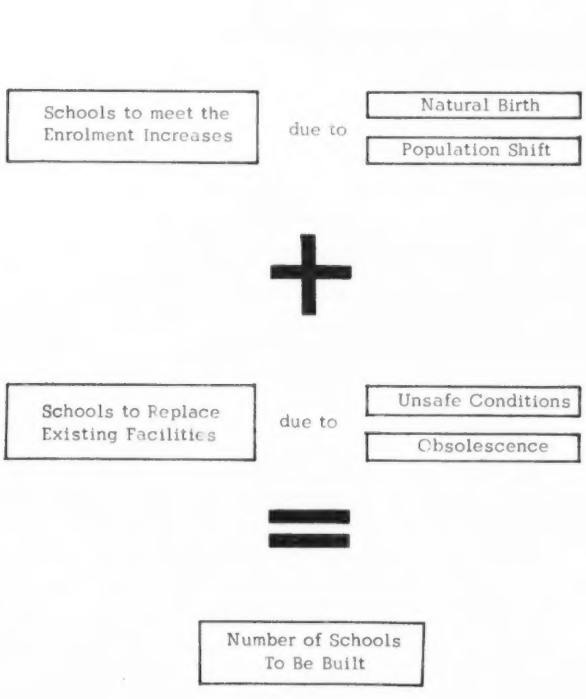
Establish a plan of future school accommodation for the entire school district. This can be a 5 year or 10 year plan.

To accomplish this:

- The administration must establish a relationship with the local planning authority so that the latest information on residential and industrial development will be available.

- a careful study must be made regarding zoning regulations to predict any possible changes which can affect the density of any area.

However, changing conditions can be expected which will require careful assessment and modification periodically. Doing this, we will avoid shortage as well as surplus in our school accommodation; both of them, are serious matters.



School Location

Where should schools
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- finding out where the
- finding out what land
- checking zoning and
- determining the boun
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The Effects of the Site

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How Large Should the S

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1. Enrolment
2. Educationa
3. The Plan t
4. Availabilit

Users

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s due to Natural Birth / Population Shift

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due to Unsafe Conditions / Obsolescence

=

Number of Schools To Be Built

School Location

Where should schools be located? This seems to be a very simple question but has complex answers which include:

- finding out where the pre-school children live
- finding out what land is available
- checking zoning and bylaws
- determining the boundaries which might hinder residential expansion
- study of traffic patterns
- determining in which directions the community will grow

The Effects of the Site

Whenever possible, the architect should be consulted before a firm committment is made on the site. His evaluation of a site is made not alone on "eye appeal" but on a study of the adaptability of the site to the type of the building to be placed there, as well as on such matters as availability of water supply, sewage disposal, storm sewers, utility connections and a host of other site considerations often overlooked.

The site upon which the proposed facility is to be built, can have a considerable effect on the final cost of the project, particularly if abnormal sub-surface conditions are present, or even worse, are disclosed during construction. It is, therefore, essential that the architect be furnished as early as possible with an adequate topographic survey of the site and with data from test boring and site analysis.

How Large Should the School Site Be?

Precisely how large a school site should be depends upon a number of variable conditions in each case.
But we can rely on the following basic elements.

1. Enrolment number
2. Educational program
3. The Plan type
4. Availability and cost of land

Users

If you are one of the school planning team (an educator, architect, school board official or an interested citizen) take a good look at your client. You should talk to teachers, students and community representatives since they are the true clients and the main users of the educational facility.

Students

A student's attitude toward learning can be molded by the atmosphere in which learning takes place, and a recognition of his individual identity.

School buildings have a way of generating their own atmospheric electricity. This can operate as a force powerful enough to close the doors of a child's mind as he approaches or like an electric eye to open these doors.

With this in mind, the architect must manipulate the school's physical environment so that it can be an effective educational tool, to make students receptive, to make them want to learn.

The most direct way to achieve this, is to consider their physical and psychological requirements and provide a schoolhouse that a student will respect and protect, a place where they would want to be.

Physical Requirements

- proper sanitation
- proper lighting
- good heating
- safe structure
- suitable acoustics
- right kind of equipment
- good & easy circulation
- adequate facilities

Psychological Requirements

- colourful & inspiring
- pleasant surroundings
- secure atmosphere

Community

A major factor that must not be overlooked in today's concept for planning our schools is the need to make the school the centre of the community. This can be achieved by planning our school facilities not for the exclusive use of students, but made so as to serve all ages of the community in all its activities.

To establish this element in the criteria, we require a real involvement of our citizen representatives to express their need so we can fulfill their requirements.

The Educational Specificat

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How to Prepare Our Educat

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b. what we are supposed
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d. what equipment should

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The Educational Specification

Ideas rather than masonry, must be the point of beginning if the design of a school is to effectively accommodate the student and the educational program of the present and the future.

Based on this concept, the school boards have to conduct a detailed evaluation of their educational program for today's and tomorrow's students.

In preliminary discussions between the architect and the school board representatives, the latter should contribute carefully prepared and documented statements on the specific functions to be served by the new building and the architect should use his planning, skill and knowledge to serve these functions, taking into consideration that planning a school building requires not only a comprehensive view of the needs of today, but imaginative thinking about the needs of the next decade or two.

How to Prepare Our Educational Specification

Here we should not try to put any standards. We should only think from the very beginning before it is too late.

a. who are we supposed to teach
b. what we are supposed to teach
c. what methods should we use
d. what equipment should we use

Shape & Size

The shape and size of a school facility varies greatly with its educational program. We cannot decide on whether a square or rectangular one serves the activity better than a circular or octagonal shape before considering:

- what activities will take place within it
- what kind of equipment and furniture is needed
- how many students will it serve

The answer to these problems must be supplied by the educators who should take a hand in specifying the function of the different facilities.

However, we have to design our facilities in a flexible way to serve today's function as well as tomorrow's change. This can be achieved by designing a flexible facility to allow:

. variable grouping
. independent study
. flexible scheduling
. viable teacher roles
. team teaching

Space Arrangement

This means simply the arrangement and the flow of space within the learning facility, from facility to facility and from indoors to outdoors in order to allow maximum freedom of movement and a minimum of restrictions.

The provision of ample spaces of such fluidity and variety so that they would be adaptable to the greatest range of activities from the individual student working alone to small, medium and large groups.

. The spaces also have to meet the needs not only of the students but those who would use it as a community centre and the groups who would be using it for summer recreation programs.

. The use of interior furnishings and equipment that children could control themselves.

The use of the outdoors as a resource centre that can be incorporated as much as possible into the school itself. The plant and animal life, the changing seasons, were all to be made available to the students as material for learning.

Space Relationship

The school has to be designed as a unit. Maximum care has to be given to establishing a good relationship between the different facilities by grouping them with respect to function to achieve:

- smooth academic operation
- minimizing circulation
- reduced time for moving from one facility to the other.

Furniture

Determining the shape and size of a school facility should be made after furniture and equipment requirements have been taken into consideration.

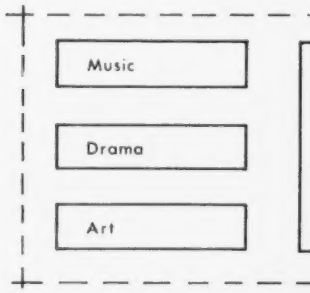
Dimensional Aspects

The shape and dimension of all the furniture must be carefully studied in relation to the user's anatomy. Anthrometric data should be provided for determining this.

However, the following points have to be considered:

. adaptability
. durability
. easy movement
. suitability for different arrangements according to activities

SPACE RELATIONSHIP BETWEEN A



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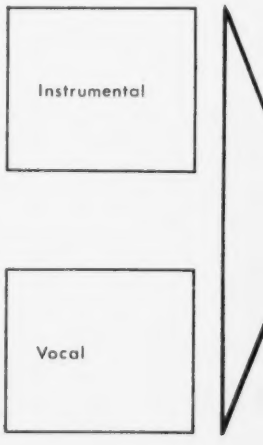

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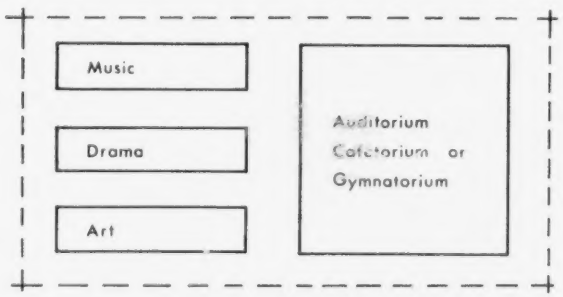
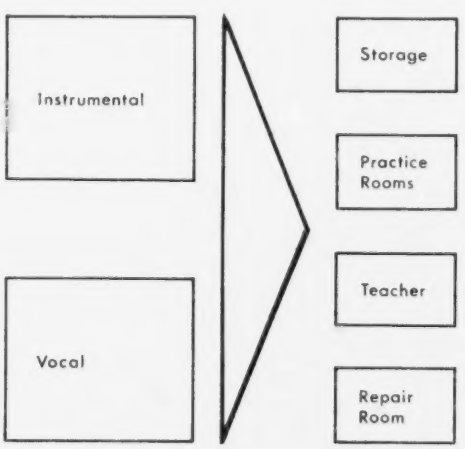
SPACE RELATIONSHIP BETWEEN A GROUP OF FACILITIES



SPACE RELATIONSHIP FOR A SPECIFIC FACILITY (MUSIC)



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Lighting

Consideration must be given not only to the quantity of light but also to its quality. This can be achieved by:

- good distribution
- glare-free
- proper combination of illumination, contour and texture

Much discussion and opinion has been expressed about window or windowless schools. Daylight should not be the main source of illumination in our schools. Windows are needed for physiological and psychological reasons. The size of windows is a matter to be decided by local authorities.

Sonic Considerations

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Sonic Considerations

The science of acoustics is a relative newcomer to the field of school building design and construction. Perhaps this is due to the fact that a number of our sound problems today were not present in many of the older, more massive buildings of yesterday. The light-weight floor and wall systems in our modern buildings, the increased use of glass both exterior and interior, plus the complex system of ducts, cables and motors found in almost every new building, all contribute to the noise-making potential with which the school planner must deal.

In making for good acoustic conditions with a room or building, we must take into account two separate facets of the sound problem.

. control of sound within the facility
. exclusion of noise from sources outside the facility

The control of sound within a fixed room is a relatively simple matter, since there is available, a whole range of acoustic materials that absorb sound. However, sound control is overdone when sound absorption is raised to the point where a room becomes dead and where speeches become incoherent at short distances.

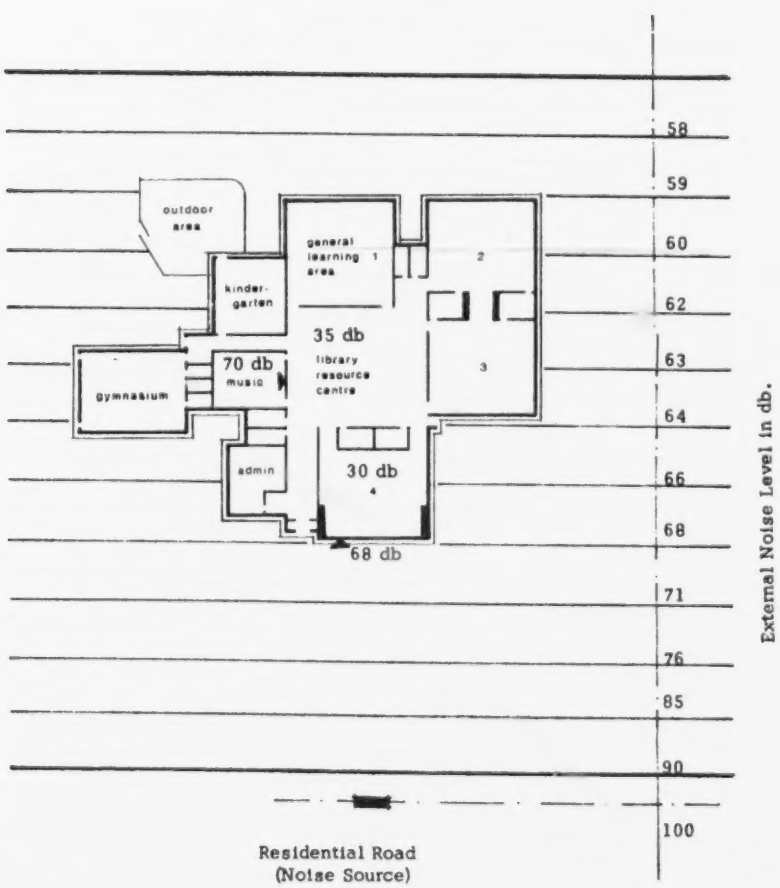
Ideally, then, proper acoustics within a given facility calls for appropriate amounts of hard and soft surfaces. Arriving at the proper solution is somewhat more complex whereon learning facilities are made more flexible in size. Special problems may require the services of an acoustical consultant.

Preventing noise transmission to the facility from outside or from other facilities is a somewhat more difficult task. However, an assessment of insulation requirements should be made (as will be explained later). Space allocations which locate noisy activities as far from quiet areas as possible, will accomplish a great deal. Such allocation should be a matter of first concern to the architect.

It might be well to note here, that a certain amount of background noise or general hum can be tolerated in most instructional areas. In fact, the absence of outside noises can make small noises (a clock ticking) within a room just as distracting to the occupant as would a low level noise of outside source.

Requirements of good hearing conditions are:

- the background noise should be low enough not to interfere with the desired sound of speech;
- the desired sound must be loud enough to be heard without effort;
- the reverberation time must be short enough to avoid echos and long enough to provide some blending;
- the sound must be distributed properly through the space.



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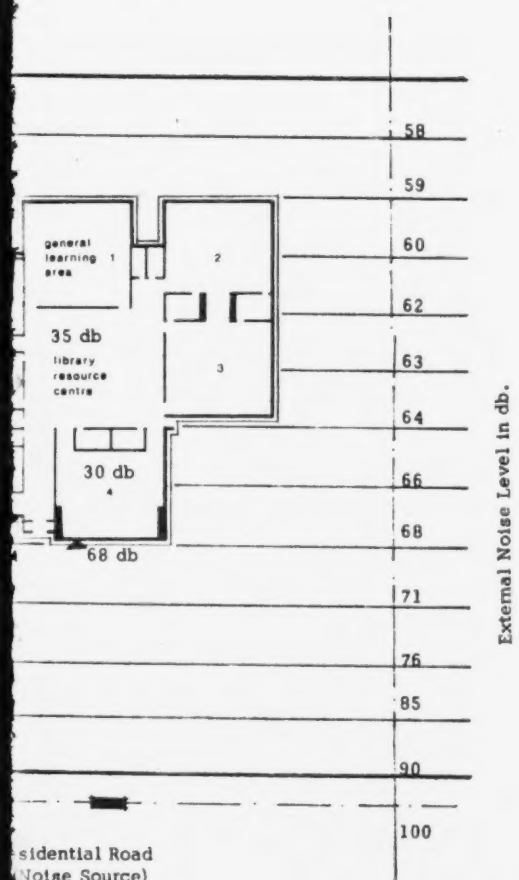

Assessment of Insulation Requirements

In the early stages of design, an approximate estimate of the insulation requirements should be made. This can be achieved by reference to three kinds of information:

- The external & internal noise expected
- The acceptable intrusion noise levels for the various rooms
- The average insulation values of various types of construction

An example may serve to make this clear, let us assume that a preliminary plan for a primary school has been prepared. The site in question has a residential road on the southern boundary and the activities in certain facilities are likely to cause noise disturbance.

External Noise

By meter reading taken on the site, the traffic noise may be plotted on the drawing in forms of contours. By placing the school plan on the contour sheet, the level of the external noise can be seen on the periphery of the building.

Internal Noise

The sources of internal noise may be assessed and marked on the plan (this can be arrived at by measurement of the noise in similar existing facilities).

Intrusive Noise

Each facility in which intrusive noise may cause disturbance should be marked with its acceptable intrusive noise level. The arrows on the plan indicate where structural insulation will be required to reduce noise transmission.

Average values of airborne sound insulation of walls

Approximate insulation (dB)	Weight (lb/ft^2)	Construction
55	190	18-in. solid brick or stone plastered. 15-in. dense concrete plastered.
50	90	9-in. solid brick plastered. 7-in. dense concrete plastered. 12-in. no-fines concrete plastered.
	64	Two leaves 4-in. clinker block with 2-in. cavity, wire ties, plastered.
45	50	4½-in. brick plastered. 4-in. dense concrete plastered. 6-in. no-fines concrete plastered. 8-in. hollow dense concrete block plastered.
40	30	3-in. clinker block plastered both sides.
35	50	4½-in. brick unplastered.

Now:

- for any facility on the school perimeter, the external noise (E_n) outside is known. An acceptable intrusive level (A_iL) is known. The amount of noise reduction is the difference between E_n and A_iL. Knowing this, we can choose the suitable material that can provide such noise reduction.

In the plan, for number 4, G.L.A. E_n = 68 db. A_iL = 30 db. The noise reduction is 68 - 30 = 38 db. This can be achieved by 3" clinker blocks plastered on both sides.

For internal noise transmission between one noisy facility and a quieter one, the same can be done.

For example, the noise level in the music room is 70 db. The A_iL in the library is 35. The noise reduction is 35 db. This can be achieved by 8" hollow dense concrete blocks plastered, or 4½" bricks unplastered.

Heating and Ventilating

The requirement for heating and ventilating school buildings vary widely because of geographic location.

Satisfactory systems can be designed with gas, oil or electricity as the heating fuel, and with steam, hot water or tempered air for distributing heat. The choice of fuel will depend on availability and relative cost. The choice of heating system is a technical problem for the architect and his mechanical engineer working with the board's maintenance personnel.

Provision must be made in designing a new facility for present and future requirements.

Heating and ventilation systems based on a rigid design for meeting only the present requirements, may be extremely expensive to adapt to future changes in the arrangements of rooms and partitions.

Consideration should be given in the design stage to the need for providing adequate zoning of the heating and ventilating systems. It is well to control certain areas of the building independently of each other.

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Air Conditioning

In discussions relating to the design of educational facilities, the question of air conditioning is bound to be brought up at some stage. Obviously, the sooner this question is raised, the better, and the answer should be given only after careful consideration of all pertinent factors.

It appears likely that educational facilities are to be faced with not only a longer school year but also a longer school day, then in the areas where climate is a factor, air conditioning becomes desirable.

Architects are seriously concerned with this matter, since they are aware of the problems involved in installing a cooling system at a later date.

In fact, some architects are designing their new educational buildings in such a way that it will be necessary later, merely to install the cooling equipment. They feel that the extra cost of providing the additional space and duct work now, will pay dividends in the future.

It would be well for any institution to evaluate the difference in cost between the required heating and ventilating system proposed for the school and a complete year-round air conditioning system.

Aesthetic Consideration

Academic buildings and facilities must not only function, they should be objects of beauty in themselves, creating a pleasant environment in which to work.

Beauty may be enhanced by an appropriate use of line and colour in the design and furnishings.

Carpeting may add to the beauty and comfort and also save in maintenance cost. A whole new array of materials for wall covering have also become available and the advances in structure have opened up a new range of design solutions and expanded the architect's field of vision in designing the appearance of his buildings.

In my opinion, the overall appearance of the school must set a high aesthetic standard for the community as a whole and be consistent with the architectural design characteristics of the community.

Selection of Material

The ability to maintain a comfortable, safe and healthy environment, in keeping with the educational function, can be achieved by careful study and selection of material and finishes.

Specifications alone, do not give full assurance of quality results. Careful planning and also supervision, assure that the finished product is in accordance with educational specifications, manufacturer's recommendations and industrial standards.

Ceilings:

A major problem in ceiling specifications involves the selection of material suited to the function of the area with regard to appearance, acoustical properties and resistance to moisture. Easy maintenance or renewal of ceilings must be considered.

Interior Walls

In selecting interior walls or partition material, the appearance, durability cost of maintenance and acoustical properties are important factors.

Floor

Most educational buildings require a variety of floor finishes. No single flooring will meet the needs of all areas. Any selection should be made according to principles of function, durability, cost and maintenance.

Economy

There is a big difference between low cost schools and economical schools. The term low cost has a limited meaning referring only to the relative price of the plant. The term economical on the other hand is much broader and refers to the management of the means and resources of a community with a view to productiveness and avoidance of waste in both the planning and operation of a school plant.

A school for example, that costs $15.00 a square foot usually is low cost, but it might not be at all economical. If the low unit cost figure is obtained at the expense of the educational process or at the expense of a healthful and stimulating environment, or at the cost of exceedingly high maintenance, the school is certainly not economical.

Our target is to ensure that the taxpayer gets the most for his dollar. How can we get the most for our dollar? One of the first things to do is to set up cost controls.

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Cost control starts with setting the limits. The trick is to work within these limits. It takes a well informed and creative architect to do this, and he cannot do it only by himself. He needs all the help from the educators that he can get. He might for example, want to combine certain spaces in order to lower the construction cost believing that such a combination would not greatly interfere with the educational program. But on all such decisions, he must consult the educator.

However, there are some economics that are relatively independent of education. These include such items as:

- the geometry of the plan
- construction methods
- the type of structure.

CRITERIA FOR PLANNING - V
by P. Cowden

In thinking about the topic "Criteria for Planning", I have taken into consideration the benefit of the students. I have found in my research that what the student would like to see in the planning of a school is often wise planning. On the basis of this introduction and the criteria of which I have gathered, I shall now begin the process of examining the designs in which schools have been made.

First of all the planning of a school should concern not only the present students' needs but also the needs of the future students. Such aspects as location and size of the school fall into this category. A school which is not too large - say Laurier's size of 750 is an ideal institution.

With this in mind, establishing the necessary criteria for planning is easy. A school is divided into different sections: prime areas which are located in block patterns, and secondary areas which are located outside the prime areas.

The Main Office of a school should be located in the main foyer. This is because this is the controlling heart of a school and therefore should be in the most convenient location for staff, students, and visitors. Thus, it is located in the main foyer on the first floor by the main doors.

The Library in a school is the major reference area and therefore should be put in the same prime area as the Main Office, near the front foyer, convenient to all services. The Library then can also be used as a Public Library if necessary. A Library should include study tables, study desks, and seminar rooms as well as reference and reading books.

The Auditorium should be in an area that is easily reached from the main entrance. Its structure should resemble that of a theatre. The problem with most school auditoriums however, is poor and inadequate planning. For example, I will use the Auditorium of Sir Wilfrid Laurier Secondary School. The following is an excerpt from an essay written by Dave Scott who is a student in charge of the auditorium in the forementioned school.

> "The bars that support the curtains and lights in the auditorium are suspended from the beams on chains. These beams are slanted and the chains were only clamped on. Now three months after the auditorium was finished, these chains have slid down the beams an average of one inch, giving the stage a lopsided effect."

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"The two column speakers at the front of the auditorium push the sound straight forward. The poor people sitting in the outside aisles do not hear well."

"The Laurier lighting system has three rows of lights that are supposed to light the back stage. Many of these lights are useless because of the poor positioning of the lights and curtains."

"Drainage under the stage was not properly investigated and is now causing problems."

Near the gymnasium should be the cafeteria. This would provide easy access to those students in the gym wanting food and drink to reach the cafeteria without moving through the halls. Both of these areas should be located away from the prime zones of the school as they are meeting places for the students and tend to be noisy. They could be placed in the rear of the school making it easy to reach the back campus for walking, or playing sports.

The Music room should be located away from normal classrooms and near the auditorium. This allows the Music students easy access to the auditorium with their instruments and keeps the sound level of moving equipment etc. down. The Music room itself should be carpeted and sound proof. A stereo record player, tape recorder and piano should be provided for use during the music year by ALL music students. A piano should also be provided in the auditorium so the one from the Music room isn't shunted back and forth setting off the tuning! Practice rooms should be provided for students wishing to have private study and an intercom system between the room and the teacher's desk would be useful.

Normal classrooms should be located in the secondary area away from gyms etc. They should be of a modern design with adequate lighting, heating and air conditioning systems. All classrooms related to the same subject area should be grouped together. i.e. science wing.

Storage rooms should be provided for department heads. This enables them to have adequate areas for storage of books, etc.

Seminar rooms located at the back of the auditorium permits them to be used as part of the auditorium seating arrangement or to be divided into smaller areas.

A small but necessary point is that the cafeteria should have doors which open to a lawn or courtyard. This allows a relaxed and informal atmosphere during the lunch hours as the student can sit outside.

The use of carpets in places such as team teaching rooms, allows the student to sit on the floor during informal gatherings with speaker. These rooms should be designed so that a speaker talking normally can be heard at any point in the room.

Schools should not be located on main streets. Main streets are inconvenient for the student.

Parking for schools should be planned for future traffic. This will avoid cramped and inadequate spaces found beside many of today's schools. Student drivers as well as teacher drivers should be taken into consideration.

In designing a school, the number of floors is a main topic. A school with two floors provides little or no accessibility problems. Schools, however, with more than two floors are often inconvenient to the student. One method of solving this is the use of escalators. But in every school I have visited, with escalators, they are equipped with <u>one</u> escalator going up part of the day and down the other. Therefore, it would seem very worthwhile to put two escalators in a school with over two floors. Also these escalators should reach <u>every</u> floor.

One of the most important factors in discussing the Criteria for Planning for the student is concern for colour. A school should not be painted the basic white (as is found in Sir Wilfrid Laurier). It should be full of colour. Also fancy brick work and wood panelling add to the brightness of a school.

With traffic areas well co-ordinated and the Library easily reached by all departments, students would have accessible study areas and reasonable grouping for social and recreational purposes.

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DEVELOPMENT OF SCHOOL SITES
by J.E. Secord

<u>General Comments</u>:

The most neglected area in the development of school sites has been in the treatment of the outdoor areas. It seems to me that a great potential exists in the treatment of outdoor spaces around our schools. When we think of the many ways the outside areas of our school sites could be utilized to improve the quality of the learning environment - and at a relatively low cost in terms of total development costs - it is hard to believe that educators and school boards have thus far not insisted that a small percentage of the overall budget be allocated to developing and improving the building's immediate environs.

The reasons for this neglect cannot always be blamed on lack of funds. Unfortunately, most school boards and most architects feel that a landscaping can be added later and that it is really a "pretty-up" proposition rather than a studied treatment that upgrades and lifts the spirit of the whole learning process.

Just as an architect is trained to manipulate interior spaces for exciting visual effects, so the landscape architect works with outdoor spaces and their effects. In particular, he works with these spaces and landscape design elements - (trees, shrubs, walls, seats, paving, etc.) - in relation to the building so that a well-integrated landscape plan is an extension of the building's spaces and expression.

It is true that if the architect is ingenious enough and can bring construction costs to within a prescribed budget, he may have included some landscape treatment within that package. However, usually, when he has included the roads, parking lot, black-top areas, some sodding and seeding, he is lucky if the trees and shrubs to "landscape" a half-million dollar development don't arrive in a half-ton truck!

The two most common omissions on new school sites are (1) the lack of large trees for shade as well as visual enjoyment and (2) the lack of outdoor sitting facilities for relaxing and for group gatherings. The use of small courtyards off libraries, cafeterias and teacher's rooms should be encouraged and can only be useable if properly landscaped.

<u>Suggested Solutions</u>:

It would seem that only the services of a qualified landscape architect with his special expertise can solve these outdoor planning problems. Basically, school boards have three situations...

(a) Acquiring new and suitable school sites
(b) Planning a new facility on an acquired site
(c) Upgrading existing facilities that have little or no landscape treatment

a) Acquiring new and suitable school sites

School boards could be advised by qualified professional people (i.e. landscape architects or planners) as to the relative merits of proposed sites. Such points as the presence of existing trees, their types and condition, topography and drainage, soil types, possibility of park-school site combinations, views, prevailing winds, exposure to sunlight and relationship to neighbourhood traffic patterns, are all factors which should be considered when choosing suitable sites. At the moment the only criteria seem to be the size and location of the site.

b) Planning a new facility on an acquired site

A Master Landscape Plan drawn up by a landscape architect in conjunction with the architectural plans should be money well spent. Certain elements in this Master Plan would be included in the initial building contract - roads, walks, etc. Completion of the ultimate plan might take up to five years. A yearly budget might be set up to complete such a plan.

c) Upgrading existing facilities

Have a survey done of existing schools to establish outdoor requirements (Master Plan). From this, establish a priority under which improvements can take place over perhaps a five year period.

Conclusions:

If a conscious effort is to be made to do something about improving the immediate environs of our schools, I suggest that a Master Landscape Plan be drawn up for the schools in question. This plan can then be implemented on a piece-meal basis as funds become available. It would give local groups such as the Home and School and Service Clubs etc. a chance to contribute to local school improvements. A good deal of the actual work could be undertaken by older students and be supervised by staff who have a knack and/or a special interest in environmental improvements.

THE USE OF WE
by R.E. Baum

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THE USE OF WEST PARK SECONDARY SCHOOL BY THE COMMUNITY - I
by R.E. Baum

West Park Secondary School is in its third year of operation. The school was built attached to a swimming pool that was already on the site, so to a degree the school was set up for community use.

Our first venture into community use of the school consisted of 8 evening classes. This has now grown to 38 classes and groups meeting weekly under the Parks and Recreation, 3 evening classes under the Continuing Education Department of the Lincoln County Board of Education and 1 afternoon class sponsored by the Continuing Education Department.

Other groups include the rowing club using our weight-training room each evening, and investment club meeting in the school every other Monday. Cadets from all schools meeting every Tuesday.

There is also a nursery school on the property sponsored by the municipality of Regional Niagara. We use this in co-operation with our Home Economics and Family Living Courses.

In September, 1971, we offered our day school classes to adults. There were 27 enrolled and this is down to 15. This does not sound good but we have learned that adults want to come in and learn a particular thing and leave. A case in point is two welders came in from industry for two months until they became proficient in one aspect of welding and they then left. A few ladies came in and learned the fundamentals of typing and left and that is all they wanted. That point alone is very important. People want to use the school to learn something special and then leave. We must accept that and the fact there is nothing wrong with it.

On the other hand, we have a few young mothers who want to complete their education. We provide a baby-sitting service for these people so they can bring their children while they go to class.

We also have adults taking Art with our classes and one gentleman who is 71 years of age taking Year II Auto Engines as a hobby. He took his holidays in Florida during our examination period in January so he wouldn't miss too many classes.

We are still trying to get the Library open two or three nights per week.

The cafeteria is also open four nights per week as a drop-in centre for cards, table-tennis, bull-sessions, games, etc. An average of 18 to 25 teenagers

use this nightly.

I want to state that what we are doing is laying a firm foundation for the future. I feel that such a programme has to have a firm foundation or anarchy would ensue.

Our committee, which consists of parents, teachers, and students is discussing an expansion to this programme in the following areas.

1) Movies for teens and children
2) The Library open
3) Splash parties using the pool
4) Discussion groups and speakers
5) More programmes for teens and children

The long-range aim for this programme is to have the school as the centre of the community and not have it as a community centre. We will, therefore, aim for a financial advisor to help families with monetary problems, a legal advisor, a marriage counsellor and a social worker, all on a part-time bases.

Eventually, not too far off, we want the school to become a family drop-in centre so perhaps the father can use the shops, while the mother is using the sewing machines and their son is playing basketball. That is when the family will come together and go together and talk together. At the same time, there will be family nights for badminton, swimming, cards, etc. where the family play together.

You must realize that such a programme requires a firm committment by everyone involved but you must also realize that such a programme becomes an evolutionary process built upon a firm foundation. I think we are moving forward to the day when our school will be used the way it should be used - as a benefit to the whole community.

I think the students should be a service to the community in everyday things such as shovelling snow for elderly people, or taking them shopping on a daily basis rather than a "big splash" occasionally. We have students acting as volunteer helpers with pupils in the elementary schools so I think we should extend a similar service to the elderly.

Other plans for the use of the school is for use by industry. We want to work with industry so they can use our shops for technical training of their employees and our other facilities for training young executives. I can see no reason why this cannot be done.

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To supplement this whole programme we are now preparing a brief for the City Council, Provincial Government, and Federal Government for permission and grants to build a 5,000 seat stadium to be used by the whole city for anything from Track & Field to Folk Art Festivals and from Cadet inspections to Auto shows.

When all this has been reached, we might be serving the community the way a school should serve the community.

COMMUNITY USE OF SCHOOLS - II
by W. Bradbury

When I agreed to serve on this panel, I did so with some trepidation. I finally decided, however, that since I have spent a good deal of time in the last eight months listening to the ideas of the people of Lincoln County regarding the "Use of Schools", that I quite possibly know as much as many, more than a few, and less than some others about this all important subject.

May I begin with a few general questions, such as: how many of you know the value of the buildings, equipment and property administered by your board? In Lincoln County it is estimated at two hundred million dollars.

Do you know that to formally educate young people, these facilities are only used about sixteen percent of the total available time?

Are you aware of the insignificant amount of money it costs the boards to pay expenses over income when allowing non-grantable programs in your system? We spent the grand sum of $21,426.38, or fourteen cents per resident, or one fifteenth of one percent of our budget in 1971. Some trustees are seriously intent on reducing this because they do not believe it to be the responsibility of boards of education to supply other than formal education for our youth.

Ladies and gentlemen, maybe they are right about our present responsibilities, and if they are, I sincerely believe we must change. Isn't it possible that our tax paying public might better understand the financial dilemma of our boards if they were more involved in programs designed to educate and/or entertain them.

What is it that the people want and how could we change the designs of schools to accommodate their desires?

Here are some of the suggestions presented to our "Use of Schools" committee.

1. Schools should become the centre of the community. Many would like to see schools made available for general family activities, so Dad could do a little woodworking, Mom could sew or type, and their children, regardless of age, could do such things as play table tennis or volley ball, or be cared for by baby sitters, or use the library, or maybe just get together with other kids. These activities would really not require much in the way of design changes, except for furniture and equipment suitable for young children in secondary schools and vice versa in elementary schools. We may find it necessary to supply duplicate sets of tools, etc., so that 'teach' won't be in trouble the day after Dad misplaces an essential item.

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2. The public really would like the opportunity of using school libraries. Our committee believes that school libraries and public libraries should be amalgamated and/or integrated, particularly in small urban and rural communities. In one small urban community in our county, the public library is about one fifth the size of the secondary school library. Is there anything really wrong with making all school libraries available to the public and manned by public librarians after school hours? If all school libraries were available to the people in their area, it would certainly be better than travelling much farther to the public library or using the limited facilities of a bookmobile.

Design changes? Well yes! We may have to make libraries more easily accessible from outside and be able to close them off from the rest of the school. Book storage facilities would have to be enlarged to accommodate books of all types and for all ages.

3. One of the main concerns of many people, is the use of school buildings for public functions such as: dances, dinners, card parties, etc. Again in small communities there may not be any other place to hold such functions. Doesn't it also seem sensible to allow the use of cafeterias, gyms, and so on, for these purposes in large urban areas, thereby making it unnecessary for others to build similar accommodation.

Design changes would definitely be needed. Larger and better kitchen facilities - adequate washrooms - what about bar facilities? These must all be considered. It would naturally be desirable to be able to use these areas without having access to the rest of the school,

4. Private music teachers would be very pleased if schools were available for their recitals. Why not? I really can't see why we haven't considered changing our music facilities to allow these teachers to instruct their students on school premises and maybe even during school hours.

One of our more recently planned additions includes an area which doubles as a music room and a stage for the gymnatorium.

I would like to sum up as follows:

(a) Let us decide that school design should not only include the requirements of our youth, but that of the whole community.

(b) We should encourage the Department to give grants to cover the community use of schools.

(c) School boards should be encouraged to make provision for community school managers to supervise and direct after-hour programs, with suitable office accommodation provided.

(d) Programs should be both formal and informal in organization to permit people to drop in on an irregular basis to high school shop, business and physical education areas and designs changed to allow same.

What I have attempted to present in these few remarks is my belief that schools, equipment and property should be so designed and laid out as to ultimately provide much greater use than at present. When deciding on design let's consider the requirements of the total community. We must consult with recreation and library boards and other community organizations and recognize that our role should not be just that of supplying facilities for the purpose of formally educating our young people.

A COMMUNITY SC
by A. Argent

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A COMMUNITY SCHOOL RATIONALE - III
by A. Argent

A) The school as an isolated institution in today's society: -

1. A traditional position of esteem and authority - most parents or adults treat the school with austere reference.

2. Education is a sophisticated process of administration and learning.

3. Institutional organizations tend to establish decision making levels that are not close enough to the service areas.

4. Many of our current schools have been built recently, and present themselves as one of our most costly, attractive and usable public facilities.

5. Most communities need a community center through which people may meet and learn how to grow together. Most schools contain all the elements of a complete community center.

B) The community education concept: -

1. is not:

- only the use of schools by community groups during "non-school" time
- a program of after school activities for children and adults, conducted by the school board or other groups.

2. but it is rather:

- a process by which the school (staff and students) and the community (parents, community leaders, groups, clubs, organizations, etc.) jointly identify common concerns reflecting local interests and needs, and develop resources and activities to meet these, using the school as the major focal point for development.

C) What can be achieved?

1. The student may feel a greater sense of inclusion through informal likeable activities. Such activities can be presented as a regular

elective program or may extend into extra curricular activities in the afternoon or evening.

2. The parent may gain a better and broader understanding of what the school is trying to achieve and what methods are being used.

   Ways which may help the parent become more understanding include:

   (a) Visiting the classroom - more than once or twice a year.
   (b) Serving as a teacher aid.
   (c) Providing leadership in an elective.
   (d) Taking part in adult activities in the school.
   (e) Serving on planning committees or groups discussing issues and activities pertaining to the interests of the school and the community.

   The adult may not only gain awareness and understanding of the school, but develop an awakening for som personal growth.

3. The school may discover outside resources and an expansion of the learning environment may take place. The school may also discover ways in which it may begin to relate to and engage with the community, so that education no longer becomes a restricted experience for children aged 5 to 18, in the school, from 9:00 a.m. to 4:00 p.m.

   These may be realized by:

   - extensive out of school activities
   - more use of community resources within the school
   - assigning student "community related" tasks.

4. The community may become more aware of leisure in our society today, and through programs in the school, develop an appropriate philosophy of leisure, and learn the skills necessary for a meaningful quality of life.

D) What it means for:

1. The principal -

   He may need to be prepared:

   (a) to let parents into his school on an almost casual basis
   (b) to test the limitation of rules and regulations, which are perceived or actually represent obstacles or restrictions to affecting change
   (c) go out of his school to meet with community groups, interested citizens and community leaders, or help organize community groups

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(d) to recognize that the use of his school may at times come under the jurisdiction of other human service agencies and authorities.

2. The community -

They must be prepared to:

(a) work co-operatively with their school, avoiding tactics of intimidation and force
(b) provide their time, talent, services and energies, particularly during the period of strategy development
(c) abandon the belief that the school is an ivory tower of teaching, and that the school has the exclusive responsibility for education.

E) Where do you start?

1. Not with - somebody else's constitution
- somebody else's program
- trying to do everything at once.

2. Remember - your community is unique in its people resources, characteristics and specific needs.

3. If you are a school or a recreation agency or authority, your job is to help people determine the priority of their concerns and needs, and to help them discover ways in which they can most effectively meet or satisfy these. Your job is not necessarily to provide all the services or programs yourself.

4. Start with what you've got!

This includes:

a school	other parents and adults
local interests, concerns and needs	students
	staff
facilities and equipment	leaders

5. You may need to:

(a) develop adequate and valid means of assessing community interests and resources
(b) find or develop some committed people who can take steps of community action

(c) identify a point of action - the one or two things that people are anxious or willing to do
(d) sense or help create a mood or readiness - to do things that haven't been done before, or to test new ways of getting things happening
(e) plan an event that will:

1) bring people together
2) develop a common focal point of committment
3) serve as an example for positive intention and action.

COMMUNITY USE OF
by L.R. Kentridge

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COMMUNITY USE OF SCHOOLS - IV
by L.R. Kentridge

The topic of Group Meeting 3 is the community use of schools. Essentially, as an urban planner, my interest in the community use of schools relates to the way that they can provide a useful function, both from the point of view of changing techniques and methods in education and also the changing needs and demands of a dynamic society.

Historically, the function of the classroom has been a static one and it is only in recent years that changes in the school curriculum have initiated more innovation of architectural forms. This has placed a responsibility on the educator, planner and architect to ensure that the school provides the flexibility to constantly changing needs.

This flexibility is needed in order to adequately meet the following:

i) changing techniques of education
ii) changing decisions regarding the need for a two or three tier system, and in addition, changing opinions regarding duration of the secondary elementary school.
iii) changing demographic situations within any population which results in varying demand on schools.

Looking at the physical structures, it would appear that there would be substantial disadvantages to the development of independent school buildings for the various tiers. Wherever possible the provision of a three tier system within one large structure would appear to have many advantages: these would include:

i) lower cost
ii) avoidance of overlap of services
iii) the ability to meet the changing needs of
   (a) classroom design
   (b) school population
   (c) tiering of the school system

At the same time these considerations are extant, it must be recognized that the school can provide a valuable interface with the rest of the population of the urban community. This should go beyond the present situation, namely, of using the school as a function where parent/teachers' groups can meet, or alternatively in the evenings providing for adult recreation or adult educational facilities. Schools should have the ability to provide education and recreation facilities for the population as a whole. To this extent, functions which historically have been provided by organizations, such as the 'Y' can be complimented and filled more broadly by the school facility.

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In terms of urban design this can form a logical base in that schools are usually

(a) related to open space and parkland
(b) fairly uniformly spread throughout the community.

Insofar as senior schools are concerned, they have the added advantage that location has also been related to major thoroughfare routes. As an addendum here, I would point out that the grouping of schools clearly must be related to the senior school.

Essentially, the above indicates that it has to be recognized that the responsibility is more to the community as a whole rather than only school-going children. Education and use of the facility must be for a continuing programme that starts from early childhood and continues to old age; finally, facilities should function on a day round/year round basis, rather than as at present for less than 20% of available time.

In terms of the design of the facility I believe that this is not extraordinarily difficult and that in point of fact it should be possible to provide the traditional concept of a campus, while at the same time providing the security needed to ensure that functions can be adequately separated.

COMMUNITY USE O
by K.J. Perkins

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COMMUNITY USE OF SCHOOLS - V
by K.J. Perkins

In the past, schools were generally considered by local School Boards and their Principals, to be their own private domains solely for the education of the children who attended them. Any use of the facilities by outside groups such as local recreational, cultural or philanthropic organizations was normally discouraged. Oh, if there was an auditorium in one of the secondary schools, it would probably be rented out to the local choral society or drama league for their productions, but other than this, very few organizations were permitted the use of the schools.

However, no longer can we consider school facilities the special preserve of the academics, to be used only from 9:00 a.m. to 4:00 p.m. five days a week, nine to ten months of the year. So much money is now tied up in these buildings that the public is demanding, and rightly so, that they be used more extensively than in the past. Unless school authorities find some means of utilizing these facilities more, there are going to be louder and louder cries of protest against the high cost of education and the money that is being poured into school buildings.

To this end the Niagara South Board of Education is attempting to make its schools freely available to the community and we are having a great deal of success, and meeting with a very warm response, in this endeavour.

In 1970, the Board adopted the policy that it would make any of its facilities available to interested community groups whenever possible. Meetings were arranged with the Recreation Committees of the seven municipalities forming Niagara South and our proposals were outlined to them. They were advised that the Board was prepared to make the schools available to any community group which wanted to use them for recreational purposes provided that the Recreation Committee would process all such requests to the Board and accept full responsibility for supervision, etc. Where the Board was not required to have any personnel on duty, and no direct financial outlay was involved, the Recreation Committee would be given the use of the schools without charge. However, if caretaking services were required, the cost of such services would be assumed by the Recreation Committee on an actual cost basis. Where facilities were rented without charge, the general cleanup and restoration would be the responsibility of the user.

Some groups, such as the Y.M.-Y.W.C.A., local little theatre groups or choral societies, etc. may make direct application to the Board without going through the Recreation Committee and are granted the use of the facilities on the same basis as the Recreation Committee. Any group wishing to use a school facility after school hours or on Saturdays, must submit an application to the Board's Rentals Officer. This includes school organizations for extra-

curricular activities such as, basketball games, school dances, school plays, etc. and it also applies to outside activities on school grounds.

This program commenced in September 1970 and in its first year of operation, up to August 31, 1971, the results were most heartening. School organizations used their facilities 6,270 hours for extra-curricular activities while recreation groups used them for 7,452 hours, an increase of 138% over the previous year. Non-profit groups, such as churches, services clubs, little theatre, community concert groups, etc. used them for 1,446 hours and reimbursed the Board for its out-of-pocket expenses only. This was an increase of 90% over the previous year's rentals by these groups. The school grounds were used for organized community activities for 12,753 hours.

We have turned the keys to the schools that they are using over to the Recreation Committees and, in spite of all the fears and doubts expressed by principals and staffs, we have had no problems whatsoever. One four-room school that we closed last September has been turned over to the Recreation Committee, without charge, as a Community Centre until we require it again.

The Recreation Committees are most enthused with our program and are co-operating fully. They, as well as the Board, are determined to make it work.

There is no doubt in my mind that community use of the schools is going to continue to grow tremendously and that we are going to have to design our schools in the future to accommodate them. No longer can we construct buildings simply to fit the school curriculum - they must be community oriented as well.

CLUSTERS CONCEPT IN FACILIT
by J.J. Krar

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CLUSTERS CONCEPT IN FACILITIES FOR TECHNOLOGICAL STUDIES
by J.J. Krar

I appreciate the opportunity to take part in this workshop and to act as a resource person in this discussion group. My part of the discussion will be to present the point of view of a teacher and a technical director.

That we live in an age of change and experimentation is a fact of life. It is the speed and extent of this change which is disturbing to some people.

In the past few years, many schools have started innovative programs in most disciplines. (New course, new methods, new facilities, etc.) Members of the group teaching technical subjects have often set the pace in the new approaches to learning.

Most schools now have modern facilities to allow greater student experimentation and growth.

Our concerns lately have been:

- to provide enough training so that the student has some job skills which will interest an employer
- to provide a broader technical background, especially in principles and concepts, to prepare for post-secondary education
- to provide some experience in technical studies in either general interest or enrichment courses. (Technical literacy)

Will the Clusters Concept serve our present and future students' needs better than the unitized approach? With some reservations, my answer is in the affirmative. The reasons for coming to this conclusion are numerous but two important factors are:

(a) For the past 3 years, an increasing percentage of graduates from our programs have gone on to post-secondary education.

(b) In the Clusters Concept students will be exposed to a greater variety of learning experiences related to their main career interest.

The following part of my talk will pose a number of questions. Perhaps they will stimulate discussion, which may yield some answers. Some of my direct concerns are as follows:

The Teacher:

Do teachers presently involved in Technical-Technological programs have the knowledge to handle this concept?

Will up-grading courses be required; and if so, will they be readily available?

Can we convince teachers that this concept is a necessary advance in view of the accelerating growth of technology, so they will help make the implementation of the program a team effort in their schools?

Can the program be implemented even partially on the reduced budgets provided? Can we do more with less?

Can present facilities be adapted for this purpose? Based on discussions with the key people involved, I believe that some of the equipment and facilities available in our school can be utilized for this purpose.

Will time be made available for the teachers involved to meet, plan, implement, and evaluate (weigh the effects of) the program in more than a superficial manner?

Will the teachers involved be able to unify their varying abilities, and put the good of the student ahead of pride in their own technical and professional competence? (Will there be co-operation in the planning and implementation of the program?)

<u>The Student</u>

Can enough students be convinced that the stress on developing analytical skills for problem solving is becoming more important than developing manipulative skills?

Will the graduate of this program receive tangible recognition for his efforts and achievements from industry and centers of post-secondary education; or will he be left "marking time" until the other, technically less prepared students catch up?

Some of our concerns are: - Facilities, Money, People. Our concerns in this discussion group are mainly "FACILITIES". What approach can we take to harness the facilities available?

When all of the factors have been carefully considered, there remains the very important human factor; the personality, knowledge, and wisdom of the people involved.

The key person in the program, at the level of the school, is the principal. Even if all of the factors referred to before are positive ones, if the responsibility of the key person is negative, the program will be only a charade.

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My personal belief is that the Clusters Concept is a necessary and valid vehicle to help our students to meet present trends, and to face the challenges of tomorrow.

The problems are numerous.

The question posed is "How do we help to solve them?"

FACILITIES FOR SENIOR STUDENTS - I
by W.E.P. Fleck

I want to begin by clarifying what we mean by the title that has been chosen for our panel presentation this afternoon. Both Mr. Wiley and I are associated with the Curriculum Branch of the Department of Education. We do not personally have expertise in the design or construction of school facilities. Our involvement is primarily with program in the schools. We have, however, been in a great many schools, not only in this Niagara Region, but throughout the province and in seeing these schools and talking with the students and teachers who occupy them we have become acutely aware of the important relationship that exists between the program and the physical facility in which the program takes place.

What we hope to do this afternoon is to share with you some thoughts on the current aims, objectives and trends in secondary education and to indicate some characteristics of the facilities that will be required if the aims are to be fully realized.

Mr. Robertson has recently been involved in the extensive renovation of an older secondary school to bring it up to present standards. He is well qualified by this experience and his knowledge of architecture to reflect upon the current trends and to relate these to his experiences in the renovation of Delta Secondary School in Hamilton.

We are going to use as part of our presentation a short film entitled "The Secondary School Credit System: A Pattern for Change". I will introduce the film and then say a few more words after it has been shown. We will then hear from Mr. Robertson followed by a dialogue session involving all three panelists and you the audience. The reason why the film was produced is perhaps a good place to start our discussion.

Secondary education in Ontario is undergoing extensive change. Change has always been with us, but no doubt it is now proceeding at a faster rate than ever before. As most of you are aware, the Revised Program of Studies which came to be known as the Robarts Plan was introduced in our secondary schools at the beginning of the last decade. This plan divided the curriculum into three major branches - Arts and Science, Business and Commerce, and Science, Technology and Trades.

In the middle sixties a small group of experimental schools adopted a credit-type system which removed the rather artificial boundaries that had developed between the major areas of study and between students of different interests and abilities. The change which began then has spread throughout the province so that in this current school year, almost 80% of the secondary schools have adopted the credit system. In September 1972, the old Branch and Program structure will be phased out altogether.

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The new approach to secondary education based on the credit system with its new set of diploma requirements represents a significant change from the old program. In order to explain the significance of the change to larg numbers of parents, trustees, members of the community and, yes, even to teachers and students, this film was made by the Ontario Educational Communications Authority in co-operation with the Department of Education.

I must confess at this stage that although I have seen it perhaps a dozen times, I have not had the pleasure previously of introducing this film. And that is perhaps just as well. For, as you will see, you are not going to escape from me when we start showing the film because I will be on the screen. What you will see is an interview between Miss June Callwood and myself talking about some of the key issues in today's secondary schools. At various points throughout the film, scenes will be shown from one of our newer secondary schools. (View Film - 18 minutes)

In the film you have just seen, many issues are raised which relate to the current trends in secondary education. Not all of them have implications for school facilities. In fact, many of the more exciting aspects of the innovations which have been mentioned can be found throughout Ontario in relatively old, highly traditional school buildings. In the next few minutes I would like to mention several of the trends which I feel do have strong implications for the design of new schools, additions to existing schools or the renovation of older schools.

There were several references in the film to the guidance and counselling function. These were related primarily to the task of course selection and for the student in grade 8, some choices must be made even before he has arrived in the secondary school. Under the credit system, the counselling load related to course selection increases considerably. In the past, the student, merely by deciding which Branch and Program to enter, automatically locked in from a half to three-quarters of the courses he would take for the next four years. Now under the credit system, he must make an individual decision about every one of the six, seven or eight courses he decides to take in a given year. It might even be more involved than that. Many of our schools have adopted or are considering the adoption of some type of semester system. Under such a system these course choices have to be made twice or perhaps even three times per year and this would obviously increase further the demand for counselling services.

In addition to all of the "course-choice" type of counselling there is the normal but increasing demand for personal counselling. The youth generation of today is subjected to pressures that were unknown a decade ago. Behavioural problems in general and the "drug scene" in particular are obvious manifestations of these pressures. In many instances the guidance counsellor is the first person to whom the student turns for assistance.

My remarks concerning guidance and counselling services indicate, I hope, the importance of this particular dimension in school planning. Adequate facilities must be provided for individual and group counselling and for the storage of the larger volumes of records which accumulate in relation to the new more individualized programs.

In the film, reference was made to the school library, resource centre or media centre as many of them are now called. Such facilities have been given prominence in recommendations for school design for many years. However, it is worth noting that the newer approach to secondary education implies an even greater need for excellent resource facilities than we have ever experienced before. I have been in many schools, as I am sure you have, where good resource facilities are being used by only a small minority of students. This picture however, is changing quite rapidly. Many of the schools, particularly those with two or more years of experience on the credit system have adopted time patterns where every student has one or more spare periods during the day. This will mean that from 10 to 20 percent of the students will not be scheduled into class at a given time. The methodology employed by teachers in the classroom is now placing greater stress on individual research and active participation by students. Add these facts together and it is obvious that the demands on resource centres are increasing. Please don't misunderstand me. This is not a plea for "x" square feet per student in the media centre or even more square feet than are provided for in existing formulas. I'll leave that kind of arithmetic to the experts. What I am pointing out is a significant shift in the centre of gravity of a school's population. Whereas formerly we thought of the full population as being deployed to classrooms throughout the day with certain auxiliary facilities provided to accept groups of students up to a certain size, the fact is that students in today's schools are on the move more frequently and may well be in the resource centre instead of being in class. Putting it another way, the learning of students at school is not restricted to the classroom. We have known this for some time, but we haven't done very much about it. What is now happening in our schools is that, recognizing this important fact, and acting upon it, the day is organized in such a way that the use of the many and diverse facilities such as media centres, auditoria, gymnasia, cafeterias and yes, even the corridors are now more evenly distributed throughout the day.

A moment ago, I referred to students who were at school rather than students who were in school. This was deliberate. When we speak of learning resources, we do not necessarily stop at the boundaries of the school. Students in ever increasing numbers are making use of resources outside of the school. The "out-of-school" dimension of education is increasing. This of course, is only one facet of the total community school concept which is now being explored. In the limited time available, we cannot go into this area in depth but suffice it to say that the community school approach will have definite implications for school design.

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Before concluding my remarks I want to touch briefly on two other important aspects of school design as they relate to current trends in curriculum. The first of these, and I know that you have heard it before, is the need for flexibility. The nature of the students' individual programs is changing. Statistics are now emerging from many schools on the affect that the first three years of the credit system has had on course choices. Enrolments in english, mathematics and sciences hold up very well, at or above their former levels. However, enrolments in second languages are all down slightly and Latin has continued to decline. Geography has held up but history is down. Physical education is down by about 25 per cent. You have probably noted that with the exception of physical education, the subjects I have mentioned which are down in enrolment require no special facilities. The point to be borne in mind however, is that the courses, many of them new to the curriculum, that students are taking in place of the more traditional subjects very often do require special facilities. For example, theatre arts, sculpture, furniture design, human physiology, biochemistry and electronic music to name just a few. In the current school year, the Department of Education has approved over 1,500 experimental courses. Since it would be impossible to design into a building the special facilities for all of these newer courses, it is obvious that the existing facility must be adaptable to various needs as they arise.

Let me say a word about technical education. We were aware that for several years before the credit system was introduced, enrolment in the "shop Specials" (i.e., heavy concentrations involving double or triple options in a single shop) were declining. This decline has continued, but under the credit system many more students are taking single options in technical subjects so that, in fact, even more students than ever before may be taking technical courses in woodwork, electrical, electronics, machine shop and auto shop but interest in industrial physics, refrigeration, and construction is declining.

One other aspect of flexibility that I should mention in passing is the pattern of administration in the school. I expect that it is now standard practice in any school plan to include next to the principal's office one or two offices for vice-principals, depending upon the size of the school, and somewhere in the building some offices for the heads of departments. However, you should be aware that this pattern is changing. Some schools do not have a vice-principal. Instead they may have from three to seven deans or chairmen of major subject areas such as communications or social sciences. Teachers now tend to work in teams and require space in which to do team planning. I am struck by the fact that in many schools I have visited recently, the staff lounge (usually the size of a classroom or larger) is seldom occupied by more than a dozen teachers. Perhaps some of this space would be better utilized for team planning rooms.

I said a few moments ago that I had two final points. The last is this. The trend toward a more individualized program and the use of an ever

increasing variety of audio-visual equipment has created a need for more storage space. I mentioned this earlier in connection with the guidance facility but it applies to the whole school. Courses designed for individual students generate more paper in the form of mimeographed materials. More print and non-print resources are required. All of these require storage in the classroom. The paper work in the front office also increases. Hence more space is required for secretarial help.

Let me now conclude on what I hope will be a reasonably optimistic note. A well designed, flexible and cheerful physical environment will no doubt enhance the curriculum but I am not convinced that a poorly designed, inflexible and cheerless physical environment can completely inhibit progress when it is the will of the staff and students who work there that progress will be made. Too often, the physical environment is used as the excuse for standing still in matters of curriculum. I could show you schools in this province that are very old and highly traditional in design. And yet within their walls some of the most exciting curriculum development and innovation is taking place. Surely the ideal will be achieved when the educator and the architect can work together within budget limitations to modify this environment so that even greater progress can be made.

FACILITIES FOR SENIOR STU
by D.C. Robertson

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FACILITIES FOR SENIOR STUDENTS - II
by D.C. Robertson

A problem which faces many educational boards and their architects today, is the existence of school plants built 30 to 50 years ago that have been outdated by changes in educational programs, changes in safety codes, and changes in technology, while the structure and shell of the building may be sound for another 20 to 30 years. Do social and economic considerations preclude the demolition of these buildings for replacement by new facilities? If so, can the existing buildings be renovated to meet the new requirements being imposed at a reasonable cost?

Four years ago, the Board of Education for the City of Hamilton sought answers to these questions with respect to Delta Secondary School. The original 3-storey academic high school building was designed in 1924, with a 2-storey vocational shops addition and a 3-storey classroom addition designed in 1948.

A teaching space programme was established for the school by the Board of Education which took into consideration not only new teaching space requirements, but also the updating of existing spaces. The firm of Moffat, Moffat and Kinoshita was commissioned to prepare plans based on this teaching space programme and to analyze the mechanical, electrical and structural systems together with architectural considerations and the Ontario Fire Marshal's requirements.

In order to prepare a meaningful report on the proposed renovations, certain criteria had to be predetermined. The Board of Education and the architects arrived at the following ten items:

1. Does the school have the degree of flexibility demanded in the newer schools?
2. Is the site adequate for the additions being proposed?
3. Are any programmes curtailed because of inadequacies?
4. Does the school meet today's thermal, acoustic and lighting environmental standards?
5. Is the final result human in scale for its occupants in terms of form, size and colour?
6. Is the school an integrated asset for the community and does it serve as a community focal point?
7. Does it discourage regimentation in flow patterns or in personal behaviour?

8. Does it facilitate school organization by permitting the separation of age groups, of noisy and quiet activities, of social and private areas?

9. Does the building have historical significance within the community?

10. Does the estimated budget for the suggested renovation programme provide accommodation equal to that of the newer schools at a cost well below the cost of new construction?

The structures of both the original building and its 1948 addition were column and beam framing systems which permitted the removal of interior partitions with no affect on the structure, since the partitions carried no loads.

Existing partitions were retained where possible.

New concrete block partitions were built where required to sub-divide most spaces. Moveable or relocatable partitions were used sparingly, and only where present programs required space flexibility on a regular basis or where a new program of instruction had been introduced whose requirements for space separation were not precisely known. Provision for future team teaching areas were made in the cafeteria where movable partitions can be installed to subdivide this area into 3 smaller areas.

The existing space occuped by the Girls' Gymnasia design in 1924 was inadequate and badly proportioned to meet the teaching program. This area was demolished to be replaced by two new gymnasia with instructor's office, activity room, storage room, music room and stage dressing room facilities.

A new plumbing trades shop was added adjacent to the existing vocational shops wing.

A renovation of the magnitude carried out at Delta Secondary School requires that new code regulations governing buildings, fire safety, plumbing and electrical installations be adhered to.

At Delta, safety requirements resulted in the enlarging of two existing stairs, the addition of 4 new stairs and the enclosing of 4 existing stairs with fire resistive construction. The entire second floor corridor ceiling of the 1948 addition had to be removed and the steel structure above had to be fireproofed. Almost all of the interior wood doors required replacement. Duct shafts concealed between the back of lockers and the classroom walls which would permit smoke and fire to travel from the ground floor to the roof, had to be sealed at each floor. New systems for exit lighting, emergency lighting and fire alarm were required, as well as new gas distribution piping to science laboratories.

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Municipal codes no longer permit sanitary and storm drainage to be combined in a single system, as was the case when Delta was first built. The venting of sanitary drainage systems, not formerly required, is now mandatory.

Increases in the electrical power supply needed for new higher lighting levels and new large fan motors resulted in the need for a new underground service; underground substation increased feeder sizes and new power and lighting panels.

To meet new environmental standards, the low pressure, coal-fired steam boiler plant was replaced by gas-fired hot water generators and the system of perimeter heating convectors was abandoned. A new supply ventilation system with terminal reheat coils for each room was suspended between the old high corridor ceiling and the new accessible acoustic ceiling. The same coils could be used for cooling, if desired in the future, by adding chilled water services to them. Space for future chiller equipment has been provided adjacent to the underground electrical substation.

New radiation was kept to a minimum, being used only at entrances, storage rooms, offices, library and at corridor windows.

Acoustic tile ceilings were suspended below existing high plaster ceilings in noisy areas such as corridors, cafeteria, typing rooms, library resource area, the work spaces of home economics rooms and the offices. Carpeting was provided in typing rooms, library resource area, music room and the auditorium.

In our planning to meet the space requirements of the board and the new code requirements, and to improve the substandard aspects of the building, we also attempted to retain and enhance its positive features.

Two new stairs were added at the front, but within the old "Collegiate Gothic" walls by cutting through the floors of the 3-storey space and thereby preserving the exterior appearance.

The superbly ornate plaster ceiling of the lobby was retained and accentuated.

The auditorium, seating 847 people, has had a history of extensive use by both the public and the students. It too has outstanding plaster work on the ceilings and beams which were retained.

In summary, the cost of renovating 232,000 square feet of existing building and of providing 28,000 square feet of new facilities, as described, was $3,329,000 dollars, or about half of the cost of providing this plant new. In addition, we hope we have succeeded in rejuvenating a building which has been significant to the community in the past, so that it may continue to be in the future.

Since the renovated building was only officially opened eight days ago, it is too early to assess the users' reactions to the changes. However, it was a pleasure to read a poster prepared by students for the opening ceremonies which said "Delta, you're not getting older, you're getting better."

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EDUCATION AND ARCHITECTURE - DINNER SPEECH
by The Honourable Robert Welch

It is indeed an honour to be here this evening to address the participants of this semi-annual School Design Workshop. I am pleased that you have chosen St. Catharines as the location for your conference, and am delighted by the positive comments I have heard following your school visits this afternoon.

The theme that has been chosen for these Workshops - "Education and Architecture" - is particularly thought-provoking because of its implications for social design and development, and nowhere could this be more significant than within the context of an environment for learning.

I would like to spend some time this evening, then, sharing some thoughts with you in a rather informal way. You, after all, are the true experts in this field, and yet there seems to have filtered down a greater awareness on the part of the general public that there are definite relationships between the structures which we build and the activities which take place within these structures. With all due apologies for my layman's status, I would like to throw out some ideas of my own on this subject, and suggest how these relationships are posing new and exciting challenges for those of you involved in the area of school design here in Ontario.

One of the observations which many people have made about our public education system deals with its ability -- or, in some cases, its lack of ability -- to reflect the realities of the society in which we live. We hear comments about perpetuating "Ivory Tower" approaches to education. Students tell us that they have to leave school in order to come to terms with "the real world", and many taxpayers look on the schools we build as being inappropriately costly or "plush".

Let me say right from the outset that I do not share these particular views. After seeing the comparative construction costs for schools and other institutional buildings such as hospitals and office buildings, it is obvious that costing formulae for school construction are significantly lower than for other types of buildings.

However, I do take seriously the concerns raised by outside observers, for I believe that they reflect a growing awareness that school costs cannot be justified by lumping them under the broad heading of Education, but by explaining how these costs are related to an enhanced capacity to deliver a particular service, whether it be in terms of classroom activities, community involvement, or what-have-you.

This more functional approach to the justification of construction costs is placing new demands on those of you professionally involved in this field. You are being called upon to articulate the reasons for particular designs more clearly than ever before, and in turn you are experiencing new kinds of incentives to plan ahead for the future needs of the communities each new school will serve.

This point, I'm sure, needs little development for those of you at this Workshop, for the very titles which you have given to your group discussions reflect such a functional breakdown in approach. If I can quote some of these headings from your program, you will see what I mean: "Criteria for Planning", "Community Use of Schools", "Shared Use of School Facilities" "The Integration of School Facilities to Accommodate Exceptional Children", and so on.

Rather than simply repeating ground which I'm sure will be gone over during this Workshop anyway, I would like to turn your attention at this time to a concept which has already entered the School Design vocabulary, but which I feel merits greater attention in our approach to this subject, and this is the degree to which educational structures reflect a sense of integration within society.

Whenever the integrative function of school design is discussed, it is usually referred to in two different contexts. The first and most obvious of these is the context of social integration within the school itself.

Here I am referring to such things as traffic flow in the corridors, lounge space for both students and staff, formal congregating spaces such as auditoria or cafeteria, and the interrelationships between each of these spatial variables. In elementary schools, there is a need for appropriate playgrounds where young children can play together, and in secondary schools there is a similar need for space in which students can socialize in informal ways and let off steam which sometimes builds up during classes.

The other context in which integrative considerations are most usually raised involves the integration of the school with the community it serves. This is a topic which I know is being discussed in your workshops, and I believe it is particularly relevant at a time in our development when more and more of our citizens are recognizing the community resource nature of our educational facilities. School design is only one part of the total question of school-community relations, but there is no doubt that it has an important role to play in answering many of the "Ivory Tower" criticisms I referred to earlier.

There are other ways of approaching the integrative function of schools, however, and I would like to touch on two of these for the sake of discussion this evening.

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One of the greatest sources of division which exists in the educational community, especially on the post-secondary level, involves the rivalry between different faculties or disciplines. Of themselves, these rivalries are not particularly serious, and often enhance the ability of students and professionals alike to define the limits of their respective areas of concern.

I often wonder, however, whether these differences - very often introduced at the secondary school level - may not work against an individual's ability to grasp many of the unifying concepts in all scientific and intellectual endeavours - whether the separation, for example, of science students from english students does not pose barriers in coming to terms with the common factors of individual experience and human perception contained in both.

There are physical requirements, of course, such as noise levels, safety factors, and common resources, which put limitations on our ability to spatially integrate science labs with libraries, music rooms with language classes, and industrial arts workshops with history classes. But there are intellectual requirements as well which must be taken into consideration if we are to avoid overly separating these facilities in a way which segregates students one from another, or which deprives students specializing in one area from gaining insights offered in another.

When students pass a bulletin board or showcase, when they overhear a music class in progress, or when they see what is actually going on in a science lab, they gain an opportunity of expanding their own appreciation of what others are doing, and this, I believe, can have a positive affect on the way they approach the whole learning experience in their own lives.

A similar approach can be taken to the integration of aesthetic and functional values in the actual design of schools themselves, and the objects which are placed within them. I am constantly impressed by the degree to which new schools in Ontario reflect a consistency between these two values, whether in terms of building materials, actual physical layout, or the choice of such things as colour, floor coverings, or desk designs.

The architectural profession has long been praised for its concern for aesthetic values, and many people have commented upon the appropriateness of judging the cultural awareness of a society for the physical structures it creates. In terms of school design, this approach is tempered by the financial limitations or a particular board and the Department of Education, and by the demands of the public for accountability in spending practices.

The success of school design in Ontario in satisfying both of these requirements should certainly be a source of pride for all of you involved in this most important field. And yet, the challenge has by no means diminished in terms

of planning for the future. New schools will have to be built and older ones renovated, and the degree to which the functional and aesthetic qualities of these structures are integrated in your own designs will play an important part in determining the future outlook of the young people who will spend so much of their time within the structures themselves.

There is nothing new in all of this. McLuhan wrapped it up neatly in his observation that the medium was the message. What remains to be seen in the degree to which the message itself is one which leads toward a positive development in society - how well it reflects a truly unified and realistic world view, and brings together the diverse elements of the lives which each of us must lead.

I'd like to be able to conclude tonight's remarks with some new insight that could guide each one of us in the work that must be done, but there really are no single principles which will guarantee the success of our work in education. The challenge is indeed an ongoing and ever-changing one which can never be pinned down as long as our society changes, and with it the tastes and aspirations of the individual people who make it up.

But if the challenge is large, so too are the resources which you have built up - the expertise and experience that you have already gained, and which you are continually sharing and increasing through workshops such as this. To each of you, then, may I simply express my pleasure at being able to take part in the proceedings of these discussions, and assure you of my confidence that in terms of your present accomplishments you are truly worthy of the challenges you face.

RENOVATIO
by J.W. M

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RENOVATION OF SCHOOLS
by J.W. McLeod

Introduction

The matter of expanding and remodelling existing school buildings is certainly not new. For the past couple of decades we have added to and altered almost every school building we have designed. The thrust of these expansions has generally been in response to ever-increasing school populations, which created a corresponding need for more and more classroom space.

Today, the pressure of expanding enrollments is drastically curtailed, and the falling birthrate, at least in the U.S., seems to indicate much lower school enrollments in the next decade or two. This fact, coupled with the high cost of new construction, has caused school boards and administrators to take a second-look at the buildings they now have on hand. What they are finding is that a staggering number of old, and not so old, school buildings are structurally sound - but educationally obsolete.

In light of the radical changes taking place in educational methodology, it has been my observation that any school building more than ten years old, maybe even more than five years old, is just not able to accommodate, adequately, many of the things that the newer educational concepts are demanding. The seeming paradox, since we have always laid great stress on the importance of educating each child to his highest potential, is the sad fact that we have never really come to grips with this problem, relying instead on the one teacher to thirty pupils classroom concept. Thus today, if we truly accept the premise of individualized learning, we come face to face with the fact that our school buildings, as presently constituted, just don't measure up to the new needs.

The Problem:

Before we can decide what to do with our existing school buildings, we must first examine the impact of educational change on instructional needs, and then to evaluate these needs in terms of building planning. Whether or not we, as individuals, agree with all the newer innovations in educational philosophy is beyond the scope of this discussion, but, as planners, we do need to identify the problem areas, and seek reasonable and economically feasible solutions, within the framework of an existing school plant. Let me show you some of the activities and spaces which we will need to accommodate, and I think you will find, that many of them were not even thought of when most of our present schools were built.

1. Instructional Areas
   Team Teaching
   Large Group "Open Space"
   Individual Study Spaces
   Flexible Groupings
   Electronic Aids

2. Instructional Materials Center
   Library
   A.V. and Instructional Media
   Information Retrieval
   Student and Faculty Research

3. Teachers' Facilities
   Professional Resource Center
   Teachers' Team-Planning
   Teachers' Work Areas
   Teachers' Dining

4. Early Childhood Education
   Day Care
   Pre-Kindergarten
   Kindergarten-Primary

5. Science, Art and Music
   Expansion of programs
   at all grade levels.

6. Pupil Services & Guidance
   Counselling, Corrective,
   Remedial, Psychological,
   Health, etc.

7. Career Programs
   Technical, Vocational,
   Occupational

8. Community Services
   Social, Health, Welfare,
   Recreational, Continuing Educ.

9. Special Education
   Programs at all grade levels

Now to demonstrate the impact these new needs have had on school planning and school facilities let me show you some actual and some planned projects which incorporate many of the features we have just discussed.

SLIDES SLIDES

(Showing Open-Space Instructional areas, Instructional Materials Centers, Media Centers, Teachers Facilities, etc.)

After seeing some of these new school facilities, I think we can agree that the challenge of incorporating the newer needs of education into an old, and often times rigid, structure is a stimulating task, for both educators and architects.

SLIDES SLIDES

The Challenge:

Since the subject of remodelling and updating existing school buildings is a popular one, both here and elsewhere, you are probably as familiar as I am with the goals, purposes and techniques of conducting renovation programs. With this in mind, I should like to approach the subject from a slightly different point of view - that of system-wide rehabilitation programs, rather than the usual individual building approach.

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5. Science, Art and Music
Expansion of programs at all grade levels.

6. Pupil Services & Guidance
Counselling, Corrective, Remedial, Psychological, Health, etc.

7. Career Programs
Technical, Vocational, Occupational

8. Community Services
Social, Health, Welfare, Recreational, Continuing Educ.

9. Special Education
Programs at all grade levels

In the past year or so, my own firm has been engaged in a number of rehabilitation programs and we are finding that the system-wide approach, which looks at all of the school buildings in a given community at the same time, provides a great many advantages over the building-by-building, step by step method. Greater flexibility in scheduling both the construction phase and shifting of school populations during construction are definite advantages. Further, being able to see the whole picture can help us make significant cost savings, by the simple process of deciding which schools to concentrate on, and which schools to abandon. Oftentimes an objective technical planning study can offer sensible solutions which will enlist public support and offset local fears, besides giving school boards and administrators a well thought-out vehicle for long range programming.

The Techniques:

The first stage of a system-wide rehabilitation and updating program is the accomplishment of a FEASIBILITY STUDY which covers the following areas of consideration -

	SLIDES
1. Investigation and Data Gathering	Drawings, Blueprints, Maps Enrollments & Projections Population Shifts Transportation Traffic Patterns Geographical & Man-Made Boundaries
2. Physical Survey of Building Condition	Site Conditions Building Adequacy Present Condition Future Potential Mechanical Systems Electrical Systems Dates of Construction-Original & Additions
3. Educational Goals and Criteria for Rehabilitation	Grade Organization Revised Capacities Curriculum Changes Facility Needs Space Arrangements Community Needs

	Suggested	System-Wide Schemes and Master Planning
4.	Planning	Individual Building Planning Studies
	Solutions	Alternatives
	Time-Table	Project Construction Interim Accommodation
5.	and	Grade Changes Curriculum Changes
	Scheduling	Neighbourhood Changes Boundary Changes
	Budget Cost	Individual Bldg. Costs Program Budgeting
6.	Considerations	Financing Staged Costs Governmental Action Public Referendum

It should be noted that the development of a Feasibility Study is oftentimes a separate contract arrangement, and is usually considered as a vehicle for initiation of a rehabilitation program, rather than as a fixed definitive program for unchanging implementation. A Feasibility Study serves its purpose well if it arouses a community and its public servants to an acute awareness of the deficiencies in its existing school building plant and the desperate need for concerted action to improve the educational environment.

The Planning Solutions:

The next series of slides will show examples of planning for the modernizing and rehabilitation of various types, grades and sizes of school buildings.

Conclusion:

I think one of the poorest excuses for tearing a building down is that it has outlived its educational usefulness. So too, is the reluctance to spend any money on an old structure, thus hastening its obsolescence. As an architect, I would be hard pressed to recommend demolition of these two buildings, just because they were built in the 1920's - wouldn't you?

REHABILITATION AND ALT
by R.S. Cartmell

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Individual Building
Planning Studies
Alternatives

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REHABILITATION AND ALTERATION OF SCHOOLS - I
by R.S. Cartmell

It is obvious that there is a definite need for the updating of our older educational facilities and I am convinced that it is not always necessary to do so by the construction of a complete new building.

There are people who will point at the fine education they obtained years ago in the old "Red Schoolhouse". Just try to tell these people a line that the old "Red Schoolhouse" is totally inadequate even though they are occupying $50,000 to $75,000 homes. Even more strange however, is where we have complaints that new or renovated schools are not required in an area because it makes the students dissatisfied with their own homes.

In the central area of Hamilton there are seven elementary schools that were built 77 to 119 years ago and also 25 schools in our system in use from 40 to 75 years and I am sure that similar conditions prevail within the jurisdiction of other Boards of Education in this province.

Renovation of school buildings is not new. We record in our Board minutes that Central Public School, built in 1851 at a cost of approximately $2,000 was remodelled in 1890 at a cost of $25,000. In 1930, the same school interior was again renewed at a cost of $43,000 and this fine old building is slated for a further renovation, we hope, within the next five years -- an accumulation of 124 years of service.

In considering our older schools, we conducted an obsolescence survey. The intent of the survey was to ascertain whether a school was situated to serve the area adequately, whether it was too large for the area served, too small and whether or not it would require renovation, partial replacement or total replacement, together with an estimate. For example, if the school were at an extreme corner of the area surveyed, the cost of the new site is included. If replacement was required, the cost of such replacement was estimated. Once this survey had been completed, we were then in a position to determine our priorities and our capital budget programing. We have, under this program, completed two schools both of which have been replaced and we have made renovations to two other schools both of which are secondary schools.

The Delta Secondary School was built in 1924 at a cost of $555,000 and then the Collegiate Institute contained 31 classrooms, 2 shops and 2 gyms. Transformed to a full secondary school in 1948, we added 50 classrooms, 4 shops and a double gym at a cost of $1,453,000.

Like most Boards of Education, in 1962 - 1966 we updated our shop areas under the Federal/Provincial plan at a cost of $392,000.

This school was our pilot project in our renovation program and approximately

$3,974,000 -- a cost more than the total original cost of the entire structure, has provided a structural environment to meet the standard of today's schools and equipment required for this modernization cost approximately $373,500.

The amount of grant for this modernization was dependent on various factors: age of the building, present and proposed usage of the new area, new addition, etc.

A list showing the existing use of the areas and the proposed changes was submitted to Mr. Matthews, School Plant Approvals officer at the Department of Education in Toronto and I am sure he can give you any information on procedure details you may require.

This was a major project that does, however, pilot a program representing an expenditure of millions of dollars in the coming years. The changes in academic requirements and Department of Education curricula, as well as public demands for added services, have been large in number, and in many instances, unpredictable. The cost has been anything but small.

The changing attitude in Federal/Provincial aid indicates that local Boards of Education may be paying considerably more of the building cost in the future. Whether we like it or not, a price tag must be put on education facilities, and spending like there is no tomorrow must end.

The renovation/modernization of structurally sound buildings instead of completely new buildings could be one way to meet this problem.

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REHABILITATION AND ALTERATION OF SCHOOLS - II
by G.S. Izatt

Should a programme of school facility updating be contemplated, I suggest that a primary obsolescence survey be prepared. It would be a study of the physical characteristics of the schools concerned and would determine:-

1. Should a school be renovated, partly renovated or demolished and a new building provided?
2. How much it would cost to complete the various recommendations.
3. The priority in which the schools should be done.
4. A schedule indicating the year each school would be updated.

In Hamilton, this was done for 32 elementary schools. A separate report was completed for each school and from these reports, a summary of pertinent facts and conclusions was prepared in short form, under four headings.

1. Present building - lists all information about the existing building that could help in making our comparisons.
2. Renovations to existing building - lists facts and cost estimates on proposed renovations.
3. Reconstruction - facts and cost estimates on demolition of existing building and cost of new facilities.
4. A summary of recommendations and conclusions based on a programme of renovation and replacement.

From this point capital budget planning and Department approvals can establish your updating programme.

Where individual renovation is in order, a preliminary design and outline specification study can be requested from any architectural firm for a lump sum price. We followed this procedure in the Delta Secondary School renovation.

Following collaboration between academic, building and architectural staffs and a detailed study of the existing physical plant, a report containing recommendations for architectural, structural, mechanical and electrical modifications with cost estimates was presented to our Board for consideration.

Construction scheduling and student accommodation present major problems in renovations. On large jobs, it is impractical to attempt, with a 4 or 5 year Summer Vacation contractor attendance, a $3,500,000 renovation programme. The building can be vacated in June of one year and programmed for completion for September of the next year. Due to strike hold-up, our Delta programme completion date was extended to January - 2 five months delay.

Obviously, the student body must be accommodated elsewhere. We had two possibilities.

1. Relocation in another school on a shift basis which is applicable in most areas and
2. Utilize a vacant school building which we had available at the time.

The second choice best served the academic continuance of service and provided time to complete the job without undue pressure and Delta students returned to their new quarters in January of 1972.

If you are contemplating a similar project, an inspection of the Delta Secondary School would be of considerable value to both officials and trustees.

REHABILITATION AND AL
by M. Zuberec

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REHABILITATION AND ALTERATION OF SCHOOLS - III
by M. Zuberec

In many areas, the need for new school buildings has been either met or stabilized. The judicious juggling of portable classrooms, boundary adjustments and the use of buses in larger administrative jurisdictions has nullified the need for instant two-room additions here and four-room additions there.

School Boards have, as a result, been afforded a breathing interval, an opportunity to review past accomplishments, analyze future needs and examine existing older facilities in a realistic detached manner free of a crisis atmosphere.

The use of many elderly buildings has continued despite their obvious shortcomings. There has been no alternative. The pressing need for new buildings in rapidly burgeoning housing developments has been too great. Both needs could not be satisfied within the means of existing financial resources.

Some older schools have, by default, been the beneficiaries of recent attention. Additions quite often larger than the original building have permitted some work in the older structures.

Other older schools, by virtue of apparent disaster, usually fires of unknown origin, have been refurbished and their life-span extended. Others not so fortunate have gone under the wrecker's steel ball.

To date, there has been very little systematic evaluation of the school buildings construction in the pre-Second World War period. When components have worn out, they have been replaced and then only as a matter of dire necessity. It is, therefore, most appropriate that we examine "The Rehabilitation, Renovation and Alteration of Schools".

To rehabilitate: is, by dictionary definition, to restore to a former state, privilege or rank. I don't think that this is quite what we have in mind. Reading further, we learn that to rehabilitate also means to restore to a state of health and useful activity through therapy or guidance.

Obviously, if the state or rank of the buildings in question is related to the pre-war period or earlier, we are not really interested in pursuing the point further. However, if the aim is to restore our structures to a useful, late twentieth century activity, then we press on to evaluate the potential for therapy.

In evaluating an existing school the following can be used as a basis:

the size of the building, the condition, its location and the size of the site and its potential for adaptability. Each of these points can be expanded in detail to obtain a very accurate picture of the building.

However, two over-riding criteria immediately become apparent in examining our Senior Citizen School Buildings. The first is function: can they be put to a practical use in the context of present day teaching philosophy. Secondly, and of equal importance, can this be effected economically. Neither point necessarily takes precedence over the other.

The decision quite often is not quite as simple as noted above. The building may fail badly on both scores, functional adaptability and economic justification. Political considerations come into effect, or if you like, the human element.

There have been instances where absolute justification for closing existing buildings has been established with complete logic. However, the decisions have been arrived at without reference to the users or more accurately the user's parents. The situations have evolved into lively ones of community participation resulting in a re-evaluation of original recommendations.

Older buildings present a complex problem to the Community, they may not always fit into neatly labelled compartments and their disposition becomes a matter for community resolution.

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REHABILITATION AND ALTERATION OF SCHOOLS - IV
by D.H. Matthews

Renovation in Ontario

In Ontario, Renovation Projects must be planned within the guidelines of the Capital Grant Plan 1971 in order to receive capital cost grant approval. Often a "Renovation" program is to be combined with "Alterations" or an "Addition", or both. It is also sometimes advantageous to do "Advanced Renovations" at the same time, and it is therefore possible that large projects may receive four types of grant support. Inasmuch as the rate of grant is designed to be as uniform as possible for each type of project, this may not cause too much concern. However, each type of project has its limitations as will be seen from the following short form definition of terms:

Renovation: Comprehensive improvements to substantially lengthen the useful life of teaching spaces within a structure 35 years or more old.

Advanced Renovation: New electrical and lighting and/or heating systems in structures 20 or more years old

Alterations: Changes to the structure and equipment to provide a change in use of a teaching space no matter what age. May also include changes provincially authorized for safety or health.

Addition: New gross floor area and the normal breakout and attachment to an existing structure.

Budgeting for Renovation

The Capital Grant Plan in Ontario follows an often accepted rule of thumb that renovated space should be acquired at half the cost of equivalent new instructional space. The apparent assumption is that renovated space will have half the life of new space. Thus an extended useful life for the renovated space would seem to be a key argument if one wished to exceed the 50% of new cost ceiling.

If the budget for renovation is not to exceed 50% of new construction it is then apparent that you do not have money enough to do work on the structural system, or the basic enclosure system. A breakdown of sub-system, or element costs will show that normally $\frac{1}{4}$ to 1/3 of the budget is for mechanical and electrical services, and these will usually need replacement. Thus somewhat less than $\frac{1}{4}$ of new cost is left for upgrading and replacing general trade components such as windows, stairwells, partitions, casework and finish surfaces.

Some schools cannot be economically renovated even if they are structurally sound in frame and shell, because the corridor and stairwell circulation cannot be made good. Another basic problem which may prevent renovation exists when the original plan layout and space utilization of the renovated area is poor. This will show mathematically as a very low utilizable net instructional area compared to a large gross area requiring renovation.

As planning and budgeting for Renovation is more difficult than designing new additions, it would seem wise to allow more than the usual time and effort for programming, consulting and revising. When carefully done, and with a bit of luck, the renovated portions of a school have sometimes been more attractive than the other, more recently built, wings of the school.

PROVISION OF LIBRARY RESOURCE
by C.J. Ramsay

Survey Schools in Jurisdiction

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PROVISION OF LIBRARY RESOURCE CENTRES IN EXISTING SCHOOLS - I
by C.J. Ramsay

Survey Schools in Jurisdiction

County Boards you will recall, came into being January 1, 1969. If your Board's experience of the amalgamation was anything like ours, you found yourself charged with the responsibility of administrating schools in varying states of repair and with little uniformity in the provision of facilities such as library resource centres, general purpose rooms, guidance offices, etc. It was evident to us that if the pupils in our County were to have equal opportunity we would have to do something about our school buildings. A survey of our schools revealed that the secondary schools were in a reasonable to a very good state of repair and well served with facilities. It was the elementary panel which showed the greatest disparity.

With declining elementary enrolments it was evident that the updating of schools could not wait for an increase of enrolment at some future date. Since not all schools could be attended to in one year, criteria for an order of priority had to be established. Schools without general purpose rooms and library resource centres were listed and then ranked after consideration had been given to the following:

(a) Enrolment - present and future.

(b) The Community served by the school e.g. does the school serve as a focal point for community functions.

(c) If an addition is required will it prevent the construction of classrooms at a future date. Will it seriously affect play area?

(d) If an interior redesign is desirable how will this affect costs.

(e) What is the structural condition of the school.

(f) Will the addition or renovation bring costly problems of heating, lighting or plumbing.

You could probably add to the list but I think I have said enough to show that your Planning Committee should have a priority list based on criteria which Trustees, parents and teachers can understand and readily accept as being logical.

The Library Resource Centre

Now as to the Library Resource Centre. The title warns you that we are no longer talking about an area containing a collection of books. The library

resource centre in the elementary and secondary schools is the key to the individualization of instruction and learning. Therefore, the first step is to make a careful study of the philosophy, purpose and program of the school so that the physical facilities will meet the needs of the present and developing educational program.

This task is more difficult because of the accelerated pace of change. Design for school buildings must be functional. They must meet the needs of the present educational program and at the same time, they must be imaginative enough to be adaptable to change. For example, apart from the program in the school is it likely that the library will be used by the Community or perhaps at some future date become locked in with the University of Ontario program?

Components of individualized instruction have been listed as follows:

1. Team teaching
2. Flexible time patterns
3. Flexible groupings
4. Individualized study programs
5. Tutorial instruction
6. Prescriptive techniques
7. Continuous diagnostic testing
8. Multi-media experience

Eight reminds you that both print and non-print materials plus equipment for their use are part of the library resource centre; that a number of teaching/learning activities will be going on in this area demanding flexibility in time and space schedules.

It is evident that the planning of library resource centres has to be done carefully with the involvement of such people as teachers, librarians, audio-visual specialists, curriculum leaders and an attempt should be made to come to a common understanding about the philosophy of the library resource centre. We can no longer leave the job to the architect.

However, in telling the architect what we want, monumental mistakes can still be made (no pun intended).

Margaret Beckman and Stephen Langmead in the current issue of School Progress (March 1972) outline a typical brief to an architect for a high school as follows:

Library Administration

1. Space adequate for secretary, filing cabinets etc.
2. Adequate electrical outlets
3. Storage facilities for office supplies
4. Coat closet or rack
5. Telephone service

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Library - Reader & Collection Space

1. "x" number of square feet
2. Centrally located for ease of access
3. Main Floor
4. Designed to accommodate - a. reference area
   b. work, study area
   (carrels served with electricity)
5. Browsing and general reading area
6. Librarians office and workroom
7. Adjustable shelving throughout
8. Shelving for pamphlets and oversize books
9. Carpeted throughout
10. Storage for picture files, viewers, filmstrips, tapes

Beckman and Mead then proceed to show how inadequate the brief is by asking such questions as:

1. Does the librarian desire a classroom atmosphere so that instruction in the library takes precedence over unstructured use by the students?
2. Are there going to be seminar rooms associated with the library and how will they be designed to meet both teacher and library requirements.
3. Will books and periodicals be processed in the library, or will they be purchased already catalogued?
4. How many library staff and students anticipated.
5. How large will the collection be, and how many reference, periodicals, microfilm tapes and other forms of materials will there be?
6. Is there to be a relationship between the shape or form of the library and teaching methods or curriculum.
7. What are the library functions, is there provision for them, and for their special relationship? If these functions change can the physical space in the library change (or expand) to accommodate them?
8. What degree of materials control is desired and how will this be achieved.
9. Should teaching methods change in the future, e.g. less stress on the classroom and more emphasis on independent study, are the library facilities flexible enough to allow for such change.

They go on to recommend that the planning process should consist of two stages:

1. The Library Program
2. Design Layouts and Furniture Specifications.

The Library Program should contain the definition of the objectives and requirements of the library for a particular school and should include:

1. Projection of the student body, and percentage to be seated at any one time.

2. Variety and number of different user facilities.
3. Size and components of the collection, with projection of future growth.
4. Description of library functions and their relationship.
5. Description of library operating system (e.g. circulation & control).
6. Definition of school curriculum and its relationship to library functions.
7. Outline of philosophy of library service, including statement of responsibility to community

The authors of the article recommend that the librarian NOT be involved in actual library design but that she should study the proposed layout to determine if the architect has interpreted correctly the library functions and their relationships outlined in the written program. If the librarian is to be involved in the planning it should be done in conjunction with the architect.

May I recommend that you obtain a copy of the March Issue of School Progress. It covers many topics which are relevant to us this morning.

Finally, may I say a word on keeping track of the various projects for if we will not be building schools in the 70's, we will be actively planning alterations, additions, conversions and renovations. Superintendents such as myself wear several hats, and only a fraction of my time is spent on planning and an even smaller precentage is spent on building projects. How does one keep a check on the various stages ensuring that the project keeps moving?

I would recommend that a chart be drawn up using the Critical Path Method. This can be as simple or complex as you wish. Plan the various stages carefully and indicate the stages on the line by circles and as each major stage is achieved, colour in that circle. Have the diagram pinned up on the office wall. It will be a constant reminder of the stage you are at for that particular project and what has to be done next to keep the project moving.

In summary, I have to suggest that for general planning you should:

1. Survey the schools
2. Establish criteria for evaluation of need
3. Set up order of priority
4. Consider the program before moving into design and layout
5. Use the Critical Path Method for keeping track of your various building projects.

SETTING UP A LIBRARY RESOURCE CEN
by R.B. Gilman

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SETTING UP A LIBRARY RESOURCE CENTRE - An Educational Viewpoint - II
by R.B. Gilman

No matter whether we are concerned with the addition of a new Resource Centre to an older school or the design of this facility in a completely new institution, the starting point in each case must be with the philosophy of the Principal and his staff. The Department of School Planning has acknowledged this fact in their excellent booklet of suggestions, but it needs to be repeatedly emphasized.

Before any direction can be given to the Architect, except in the most general terms, the Principal has to come to grips with these basic issues -

How do we regard the L.R.C.?
What do we wish it to include?
How do we intend to see it will be used?
How do we visualize it will develop?

Two of the great drawbacks to the most effective utilization of a new school planned in the high development decade of the 60's were firstly the lack of involvement, by the actual Principal who was to run the school, with the planning staff and architectural team <u>early</u> enough to influence some of the key decisions; secondly, even when this latter was done, the Principal was often not long enough in the saddle to see, over a period of several years, the development of the concepts on which he based his philosophy. Both these two situations in the 70's should arise less often and greater emphasis should be given, therefore, to appointing or involving the Principal, whenever possible, before the architect, and also to insisting that the Principal have the time to plan in an <u>educational</u> and not merely physical and organizational sense.

The design of a L.R.C. component can be as elaborate or simple as resources permit, although the finished product should be pleasing to the eye. Within the limits of common sense, I suggest the quality of the architecturally aesthetic fixtures and materials to be used are low in priority. Acoustic ceiling and carpeting, however, are a must. I would consider the following order might be realistic, though all aspects are interdependent and influence each other.

1. <u>Choice of site within the school is vital</u>.

This, of course, is closely linked with the basic purpose. I believe it should be the literal and metaphorical heart of the school - serving and being served and replenished with ideas by every department. Will it be a separate building, connected to the main structure by corridors, or will it be part of a Students' Centre? Will it be a central structural renovation or the adaption of half a corridor wing? Could it have evening or weekend

access apart from the rest of the school? Avoid very noisy areas. If the siting is wrong, a Resource Centre will be beset by problems throughout its life.

2. Use

Educators should beware being dazzled by glossy advertisements and promotional journals. It is necessary to be specific as well as flexible. How much time is visualized per class, per course, per division, per department? Will there be a library timetable at all? How much open time? What about independent study? When will it open in a morning? Will it have double use at lunch time? When will it close in the afternoon? Will it be open in the evenings - if so, for whom? How closely will the school's total A.V. facilities be linked to the Resource Centre?

3. Space

How important not to underestimate resource needs of students even two or three years ahead, or the effect of the knowledge explosion. Certainly it is essential to have room in the overall plan for expansion. Guidelines are useful but is capability to seat a mere 10% of school population enough today? With higher pupil teacher ratios forecast, possibly 20 to 30% plus might be more realistic and ultimately even economic. Official minimum square footage per pupil could even perhaps be squeezed a little in favour of more total seating space with the right design. An enclosed courtyard for example can, at only little extra cost, boost summer and fall use. Offices, workrooms and stacks are invariably too small, resulting in waste of staff time. Use of some reasonably soundproof partitions between a variety of rooms grouped around the main area make for flexibility - one or two can if necessary "double" as classrooms. These should include group study areas (larger; cushions instead of chairs for younger students sometimes?) seminar rooms (smaller; revolving combination chalkboard - screen desirable), audio-visual (viewing of all kinds; tapes, E.T.V., headsets, programmed learning, film previews), music appreciation rooms (listening, recording), carrel areas, silence room, copying area.

4. Traffic Flow and Accessibility

It is vital that architect and Principal should work these factors out on a model for different times of the day. Not only should they apply to cataloguing, retrieval and general spatial arrangement, but also traffic flow towards, around, in and out of the Resource Centre needs most careful thought - especially so that distractions should not be allowed to destroy the desired "atmosphere".

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5. Stimulation Design

The L.R.C. is not merely a facility for the perceived need, it must also attract, "sell", stimulate and suggest to those who are less inclined to seek knowledge. We must design and plan for the L.R.C. to be used to the maximum by all types of students.

- Display Cases outside for new books, themes, inter-disciplinary studies, topical issues.

- Plenty of display boards near entrance for dust-covers of new books, posters, information on related media resources, current public media offerings, etc.

- A reasonably large foyer or natural focus area is necessary for all schools for just out-of-class congregation. Around this can be placed information on community activities, student internal activities, careers and even administration. Single notice boards around the school get scant attention.

- A "welcome vista" as students enter - books, periodicals, art, music, etc.

- Some lighter reading areas nearer the entrance.

- Charging desk close to exit but not so close it creates a traffic line-up.

- Observation vital through glass walls from workrooms for sensible degree of supervision (balconies in schools are not always a success).

- Small conveniences:

  - return book slot outside;
  - cloakroom and washrooms
  - one two-way lock door for student council office
  - pay phone in lobby.

6. Resources - Print and Non-Print

Proportion will depend on funds and general trends in the information and retrieval field. Main underfloor ducts should be laid providing electronic capabilities for expanded future use. Some wet carrel areas should be provided. A majority of carrels should be wired with a standard pair of outlets. Furniture should be free standing. The wider the range of resource materials and hardware the better, but to maximize utilization of what most schools already have is almost as important.

7. Choice of Staff

This is another topic but it is obviously vital to have librarians who are in tune with the school philosophy. They should have both breadth of scholarship and a multi-media background. They could well be assisted by student volunteers (paid at a student rate for out-of-school hours) who have taken a library-science course within the school for interest or possibly credit.

It is suggested that this major tool of the school is also a potential community resource. While public libraries should be complementary, in a variety of ways, not merely supplementary to the school system, close cooperation is needed. The whole emphasis of both types of libraries should be positive and dynamic in tone and practice.

PROVISION OF LIBRARY RE
by Miss P. McNeice

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PROVISION OF LIBRARY RESOURCE CENTRES IN EXISTING SCHOOLS - III
by Miss P. McNeice

Today, with decreasing student enrolment and an increasing emphasis on individualized programmes, it is becoming easier to accommodate library resource centres in existing schools.

The two major methods of doing this are:-

a) to build a new facility
b) to alter existing school areas

Whatever method is used many factors must be taken into account when planning the resource centre. The most important of these is the library programme and service. In a report on a cross-country tour of Canadian School Libraries we read that, "... quality of library service had very little to do with the physical set-up of the particular library. Excellent library programmes and services were being provided in antiquated buildings while some rather poor library services were available in some of the finest, most modern plants."[1]

A good library programme depends greatly on the programmes in the school. Highly individualized, innovative instruction combined with flexible scheduling will generally indicate the beginnings of a good library programme. Much time is thus spent by the principal, teachers and librarian in planning this "open" use of the resource centre. The key person obviously is the librarian who must have been a good teacher. A person who wants to get away from teaching and hide in a library is in for a rude shock when confronted by the modern concept of a resource centre. An "open" librarian can do much to move a "closed" school in the direction of the maximum use of the library.

Provision of resource centres, whether in a new or existing school, must be made in the light of a library programme that includes the correlation with the curriculum of the school, the projected number of students, the projected size of the media collection, the interrelationships of the different areas of the library, and the use of the resource centre by the community at times other than during a school day.

The knowledge explosion is such that materials bought five years ago are now becoming out of date, and this is true of areas other than science. This, plus new areas of interest by teachers and students that are unusual and exciting require more and newer materials as does the individualized programme of a school.

In order to plan facilities, national standards give guidelines as to the projection of future growth. The aim of these guidelines -

> "... is to present standards for media programmes that will best aid the schools in implementing their educational goals and instructional programmes... Schools with innovative curricula and instructional techniques will need and want to go beyond the quantative standards, but for schools which have not fully achieved their objectives, the standards can serve as a guide for charting goals to be reached in progressive steps over a planned period of time."[2]

For the past five years, many school boards have been aiming to provide facilities for ten books per child. In many areas this has been surpassed and the new American Library Association standards are calling for twenty books per child at least.

One can see from the above, and the huge amounts of materials published, that planned expansion of a resource centre must be part of the initial planning and not an afterthought. The major criteria for building a new resource centre on to a school or converting existing quarters are:-

1) The area must be as central as possible so that there is easy access for all students.
2) It should be capable of expansion. A circular library might be aesthetically pleasing but is it practical for expansion in the future?
3) Access to the area by the community and students after hours would help greatly to expand its idea of service.

When converting existing quarters, very often the first rooms to become vacant are basement rooms. These could be changed, but more central rooms should be converted as soon as possible. In some cases old gymnasia have been converted, and have proved quite successful as they were often centrally placed in L-shaped schools. A new gymnasium was then built. However, it must be pointed out that new regulations allow a resource centre to be bigger than a gymnasium, i.e. five square feet per student as opposed to the three square feet of previous regulations.

Because of the need to change rooms in some cases, shelving and furnishings should be as flexible as possible for conversion into the new area. We have found that shelving from a library furniture firm which is attached to pilaster strips on the wall or free standing units have proved to be more flexible, rather than specially built shelving with backing. The former type of shelving is also more flexible for the nature of the library programme as it allows us to move components of the units where we want, such as the audiovisual units in particular.

In our Board, conversion of existing quarters such as classrooms is generally done through the maintenance department, which paints the quarters, improves

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[2]American Library Assoc
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the lighting and other things if necessary. Carpeting is seen as essential from a practical and aesthetic point of view. Furniture and shelving are as flexible as possible. In many cases, perimeter shelving has to be installed because of lack of space, rather than free-standing units. However, one questions whether the free-standing units are moved very often. It is essential that the actual shelves can be moved.

When converting larger quarters such as gymnasia, or providing new quarters, architects are sometimes brought in. The major emphasis should be that those doing the planning - principal, librarian, architect - should work as a team with as much openness as possible, so that mutual problems are understood. The school people must realize the space and budget limitations and the architect must be aware of the variability of the school programme; what is in vogue now might not be in future years. No matter what mistakes are made by both sides, it is the teachers and students who have to live with them.

[1]Canadian Library Association, Reliciter. C.L.A. January 1971, P. 13.

[2]American Library Association, Standards for School Media Programs. A.L.A. 1970, p.X.

PROVISION OF LIBRARY RESOURCE CENTRES IN EXISTING SCHOOLS - IV
by L.D. Kyles

1. Change of emphasis in required facilities:

   (a) Enrollment going down.
   (b) Unequal enrichment facilities throughout systems, particularly county boards rather than urban.
   (c) County board system to give equal education.

2. Present Experience:

   (a) Many of our projects are enrichment only; e.g. Libraries, General Purpose and Gymnasiums, Home Economics, Shops, Guidance, etc.
   (b) Many have no classrooms added - enrollment actually less after addition.
   (c) Additions always seem to mean alterations to existing.

3. Costs and Grants:

   (a) Enrichment areas generally expensive - Volume and Services.
   (b) Grant System worked fairly well in past, but getting further from reality with changing requirements.
   (c) Architect not involved at building proposal stage when budgets are set by Grant system.
   (d) Building proposal sets out changes in existing building, tying down function and cost before Architect has had a chance to study the problems.
   (e) If changes to programme or budget are required as a result of architectural study, a long delay is inevitable while all various committees, departments, grant bodies, etc. have given their approvals.
   (f) Basic study of programme, for additions and alterations especially, must be planned for maximum grant as well as function and cost. "AVF, N.F.F.A. and RATIO" called numbers planning.

4. Location in School:

   (a) In 1800 student school, pupils might have to travel over 1/4 mile to Library. In 300 student school, most educators demand the Library to be in the Central location. Compromises in planning must be relative and cost conscious.

   (b) Library is a la
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SUMMARY:

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3. Existing Grant system n
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4. Mechanism must be set
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school, pupils might have to travel
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planning must be relative and cost conscious.

(b) Library is a large area made up of smaller, flexible parts. Of any function in a school, it is the easiest to fit into and around existing areas and shapes.

SUMMARY:

1. More Libraries will be built in future on existing buildings as part of enrichment equalization.
2. This form of construction is expensive, especially on a "per square foot" basis.
3. Existing Grant system not as accurate on enrichment additions as on previous normal projects.
4. Mechanism must be set up to have Architect on project to help set up building proposal requirements, planning and budget.
5. Administrators and educators should loosen their thinking for better compromise planning to lower costs.

PROVISION OF LIBRARY RESOURCE CENTRES IN EXISTING SCHOOLS - V
by A.S. Blanthorn

Libraries used to consist of converted classrooms and the librarian was employed on a part-time basis. Today, libraries provide a much more important function and are far more complex. Because of different learning techniques and audio visual aids, what was formerly referred to as a library is now known by a variety of names. i.e.:

library
resource centre
learning resource centre
learning materials centre
media centre
resourcarium

To provide the various requirements brought about by changing emphasis, programmes and techniques , it is necessary to examine the location and area of the accommodation needed. The location of a library resource centre must and can be approached in a flexible manner. The centre should be away from high noise producing areas and yet easily accessible to students and teachers. There is at the present moment, a great deal of pressure to have school library facilities available to the community as a whole. Because of this,consideration will have to be given in having the library resource centre available not only throughout the day but also evenings, Saturdays and vacation periods. This of course, brings up an added problem inasmuch as the location of the library resource centre should be so arranged that access is provided to the library resource centre without involving the whole school. It is also essential to allow for the expansion of the library resource centre. It is obvious from some of the library resource centre additions which have been submitted to the Department, that future expansion was not considered at the planning stage.

Facilities within the library resource centre should provide for adequate acoustics and lighting. Space should be provided for charging, reference, or reading rooms, audio visual equipment, seminar rooms, study carrels, office, workroom and materials storage. All of this planning will require the involvement of the Principal and his staff with the Architect at the very early planning stage. All of these considerations are problems which can be overcome in a new school but are not so simply solved in an addition or alteration to an existing school.

Because of the reduced pupil place projections, boards are looking increasingly to the alteration of schools to provide needed facilities such as adequate libraries rather than to build additions on new schools. The reduced pupil place requirements allows the use of existing classrooms which are not

RCE CENTRES IN EXISTING SCHOOLS - V

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required and enables Architects to have greater planning freedom. Boards are providing library facilities simply by using existing classrooms and altering them. It may not provide the ideal library resource centre, but it is certainly more economical. In any event, it is obvious when providing library facilities each situation should be carefully studied to reconcile the best programme with the most feasible for that school.

Capital Grant Plan

As far as the amount of area required for a library resource centre is concerned, the Capital Grant Plan in 1967 or School Business Procedures Manual as it was then called, specified that the Approved Cost of a library would be based on a maximum area of 3 sq.ft. per pupil place. The number of pupil places could be projected over a period of 4 years should the board so request. The area included space for charging, reference or reading rooms, audio visual equipment, seminar rooms or study carrels but excluded area given to any office, workroom or storage area.

Under the Capital Grant Plan, 1971, the maximum area for libraries was increased to allow for the ever changing functions of this facility. The Department of Education in recognizing the changes increased the maximum area from 3 sq.ft. per pupil place to 5 sq.ft. per pupil place. Projected pupil places may now be made over a period of 5 years from the original 4 years.

The Department of Education under the present grant system attempted to achieve an average Approved Cost for general legislative grant purposes of 90% of the actual cost. Our figures show we have been successful in this regard for elementary and secondary new schools and medium to large additions. However, for certain types of small additions, such as a library addition, we have encountered some problems. There are a number of reasons for this, one of which is the small amount of area being built. Another reason, is the large variance between the contract cost of similar types of additions even in relatively similar locations. It is, of course, exceedingly difficult to provide a grant system which will compensate for all types of buildings with all their complexities. However, we are aware of some of these problems and will continue to try to resolve them.

REPLACEMENT OF OLD SCHOOLS
by J.B. Singer

All school boards today face the problem of outdated educational facilities with varying degrees of urgency. In older urban areas, such as Hamilton, where some schools date back to the 1850's, a definite programme of renovation and replacement of obsolete schools has been established.

Since it is generally accepted that the age of a building is not necessarily the main criterion for obsolescence, a formula for evaluation of schools had to be developed.

In Hamilton, a School Obsolescence Survey was prepared and it became the basis of policy decisions of the Board for school renovations and replacements.

In the survey, deficiencies were categorized as educational, architectural, structural and maintenance.

I shall confine myself to discussing only the latter three aspects of evaluation.

In evaluating architecture, one can say that some older schools are worth preserving on the basis of their architectural merit or sentimental attachment to a by-gone era. In the latter case, only the shell of the building is worth preserving. Our Central Public School built in 1853, is a case in point. In an urban renewal area, such as our north end, the architectural character of new schools, which have replaced the old ones, has a stimulating effect on the neighbourhood by injecting a new visual element in the community environment.

In evaluating building deficiencies, the physical condition of all teaching and non-teaching areas was listed. The survey presented a "Corrective Cost" analysis, based on estimated prices, in order to bring the various elements of the building up to the present day standards. A marking system has also been developed to arrive at a figure which will show the degree of the school's obsolescence. This helped in arriving at the order of priorities in the long-term programme.

Since in most cases, the school will not be brought up to present day standards, even after improvements have been made, it was thought advisable to rate the school after improvements as well as before improvements. Thus the survey, which covered 32 older schools indicated that 16 schools should be replaced. The following was the general percentage break-down for rating purposes:-

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Building	45
Fire protection & safety	15
Educational School Features	25
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Although this division may appear arbitrary, it is not based upon relative importance of the elements but on the cost of restoration. Under the heading of "Site", the surroundings of the school, traffic, noise, play areas, parking, landscaping and room for expansion were considered.

The second heading included:-

(a) structure, masonry, windows, interior finishes, roofing, miscellaneous metal and exterior materials and elements.

(b) Heating plant, air supply and exhaust systems.

(c) Plumbing and drainage, washroom accessories, etc.

(d) Illumination, i.e. intensity, brightness, natural light and control, fixtures and distribution.

(e) Electrical services and accessories, inter-communication and clock systems.

Fire protection and safety sections included a consideration of the fire rating of building components, the separation of mechanical equipment, storage areas, safety of stairs, traffic flow, fire alarm, etc.

Next, the cost of re-construction had to be determined. This included the cost of demolition of the existing school, the cost of a new site, or additional land acquisition, and the cost of the new building.

The cost of renovation of the existing school, present addition (if required), value of the site, including improvements, was then calculated. A comparison of operating costs of the existing building, renovated and new, had to be made as well.

If the cost of renovating was more than 60% of new school facilities, a decision was made to replace the school.

In conclusion, I would like to make a few comments on school replacements, based on our past experience.

We replaced one senior public school and are in the process of replacing another. The first one was built with a community centre, which included a swimming pool, auditorium and a large gymnasium. The second school will be built in two stages -- in the first stage, the City built a gymnasium, swimming pool and craft rooms. The school will be built attached to the other facilities and the Board of Education will take over the operation of the entire complex. In both cases, the school replacement enabled us to improve educational facilities and at the same time provide community services in the school building.

A recently completed school replaced two old schools and a provision for a third floor expansion was made to replace another school. The placing of the school had to preserve as much open area as possible for playground purposes. The above schools were built on different sites. However, in another instance, two schools are built on the same site as the old schools. In this case, the building programme is divided into two stages -- the new school is built on the present playground, then the existing building is demolished and a new playground constructed in its place. This device imposes planning constraints and a temporary loss of the playground area. However, the cost of acquisition of a new site and delays in expropriation procedures makes the choice of the existing site more attractive.

Faced with the choice of renovation or replacement of schools, the aspect of economics may outweigh other considerations. However, changing educational requirements and technological advances will make the replacement of schools a more realistic solution.

EARLY CHILDHOOD
by Mrs. E.O. Jarvi

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EARLY CHILDHOOD EDUCATION - I
by Mrs. E.O. Jarvis

When we discuss rehabilitation and renovation - dressing up and making new - of buildings for early childhood education, we consider the needs of young children.

What we think about young children - and what we think about the ways in which they grow and learn, continues to influence what we, as educators, do.

When it was thought that children were little pitchers to be filled, we guaranteed that the learning situation facilitated the pouring in of knowledge in predetermined doses. Children were required to sit still, listen and learn in a classroom that "encouraged" such behaviour. Current theories and knowledge indicate that the child's thought is rooted in action; concept development occurs as the child interacts with a responsive environment.

This responsive environment is the responsibility first of the home, then of the school and the rest of the community. We, as educators, are charged with the task of providing, organizing and maintaining classrooms, making appropriate decisions about

space

time

materials

and people

so that our children may grow and learn, each to the fullest extent of his abilities.

Our consideration today is the <u>space</u> element of the responsive environment - within and outside the structure called the school. It's influence on the child is long-lasting. What is its message to the child? Is it inviting? Does it allow freedom and flexibility of use? Will it encourage pride of ownership or belonging? Does it provide for the need of the child to become involved in the learning situation?

In the renewing and dressing up of learning places to enrich the child's environment, I would encourage you to consider these aspects of <u>space</u>: [1]

Wet and dry spaces -

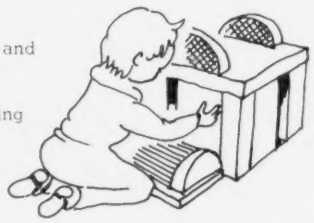
- for mucking about with water, clay, paint, where a spill isn't a major disaster
- tiled areas for sand, storage, "work" activities
- carpeted areas for block building, story telling, rest, "setting" about

"Work and "Play" areas

- accessible storag
for resource mate
- differentiated play

Noisy and Quiet places

- for blocks and wheel toys, building and hammering, dramatic play, music
- for music, stories, resting or sleeping working with an adult, eating



I would like to bring to
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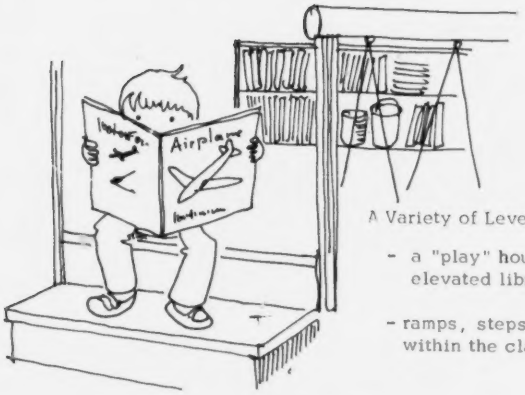
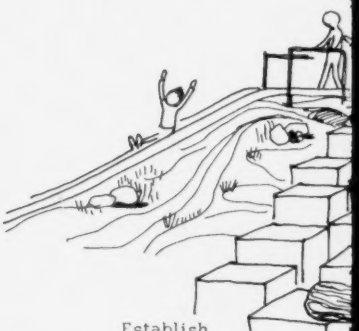


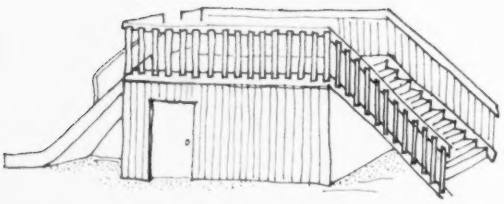
A Variety of Levels

- a "play" house in two levels, or an elevated library space
- ramps, steps, galleries or balconies within the classroom itself



Establish
slide where change
of level on site permits

Platform



Shelter or storage created by providing raised platform

Wet and dry spaces -

- for mucking about with water, clay, paint, where a spill isn't a major disaster
- tiled areas for sand, storage, "work" activities
- carpeted areas for block building, story telling, rest, "setting" about

"Work and "Play" areas

- accessible storage for children and teacher
  for resource materials, belongings - both inside and outside
- differentiated play space, both inside and outside

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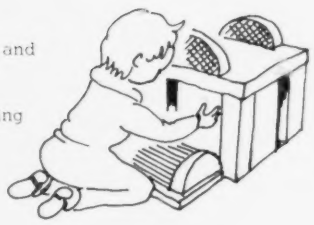
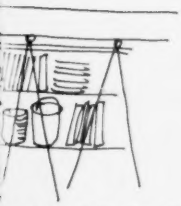
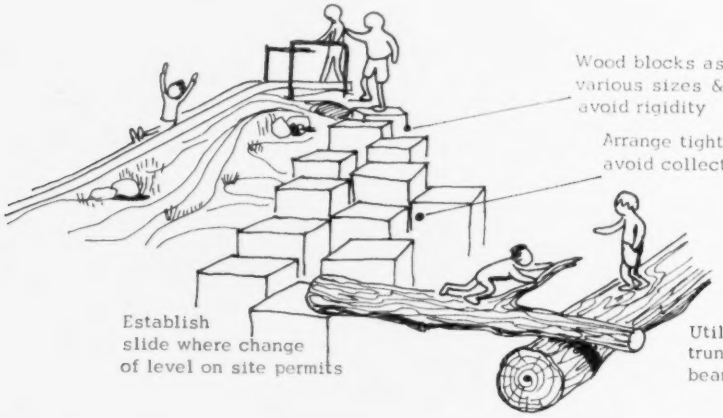


I would like to bring to your attention the fine report "A Time for Discovery"[2] prepared for the Toronto Board of Education by Donovan Pinker and Associates.[2] The diagrams show some very imaginative use of ordinary materials to make a playground a place for the youngster to become involved in exploring, experimenting and interacting with the real world



A Variety of Levels

- a "play" house in two levels, or an elevated library space
- ramps, steps, galleries or balconies within the classroom itself


Wood blocks as steps, use various sizes & heights to avoid rigidity
Arrange tightly to avoid collecting litter
Establish slide where change of level on site permits
Utilize deadwood trunks as balance beam, cumber etc.

The facilities discussed could be within the reach of all children if some priorities were set by the authorities involved, and if the community became involved in the project. Parents in a Houston Community[3] created a play space in a way similar to that discussed by Mr. Pinker. A great deal of learning, as we well know, takes place outside the school - the "classroom" is expanding.

In all our deliberations, perhaps we should remember too, that children need to see beautiful things in order to learn to appreciate beauty. They need to have access to the real things in the environment to become aware of their worth.

I hope that there always is for young children a window that looks onto the world.

References

1. Ontario Dept. of Education, School Planning & Building Research, Open Space General Learning Facilities for Kindergarten, Primary & Junior Students, 1971
2. Pinker, Donovan F. et al. A Time for Discovery. A Report to the Board of Education for the City of Toronto. 1972.
3. Sharkey, Tony. Building a Playground Newton, Mass.: Education Development Center, 1970.

EARLY CHILDHOO
by Miss J.M. Mc

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EARLY CHILDHOOD EDUCATION - II
by Miss J.M. McGarry

I must first explain that I come from the "very early" part of the Early Childhood Education field. I am from what has been known as preschool or nursery education, and our programmes mainly have concerned themselves with children up to five years of age. My comments will apply basically to kindergarten settings and particularly to the junior kindergartens.

You also should understand that our work with young children takes place under a different department of the Ontario Government. We have in Ontario a dichotomy regarding the regulating of programmes for young children.

You operate under the Schools Act and the Department of Education - with one set of regulations for programme, facilities and staff. In our Early Childhood Education, we are regulated by the Day Nurseries Act and the Social Services Department. We also have regulations about programme, facilities and staff. While similar areas are covered, specific requirements vary - e.g. the Day Nurseries Act lists staff-child ratios related to the ages of the children. Requirements for four-year-old 1/2 day programmes are 2 teachers for 15 children, 3 for 16 plus children (no more than 25 children in one room).

When both areas are concerned with the education of young children, this is indeed an odd situation! Certainly some programmes under the Day Nurseries Act have the added responsibility of all day care but many schools are half-day programmes, with goals similar to those in kindergartens.

It is important to remember that you cannot really separate care and education for the young child - you must consider the whole child in any Early Childhood programme.

All of us who work with or for young children, under either Education or Social Services, have a common philosophy - or at least compatible philosophies of Education. We find considerable similarity in our concerns, our programmes, and our ideas of appropriate facilities.

We might have some difference of opinion on teacher-training - but that is another subject.

Since we are here today to speak of facilities, I will expand on Sister Johanna's remarks a little - I agree with most of her comments.

For the very young child coming to school for the first time, it is usually his

first extensive experience outside his home and with a group of children. This is the first of many experiences with the education system which is going to be part of his life for a long time. The introduction, the first impressions, is important - it can colour the child's attitude to school and learning and teachers.

The physical set-up for these very young children should be home-like- designed with the youngsters special needs in mind and reflecting the image and scale of the home. While a continuum of education may be desired, a special place for the young child must be created within it.

Flexible playrooms - my term, yours may be classrooms - flexible rooms, must be designed for the young ones and their changing programme. The rooms must be able to be changed to meet the changing skills and interests of the children.

Almost everything in the room should be on wheels or at least moveable. The facilities should include a washroom and cloakroom. A sink and water within the room, expands the programme possibilities.

A playground is also essential to a well-rounded programme. This should be a landscaped area, combining grass, trees and hard surfaces. It should include the equipment designed to promote the young child's physical and social skills - wheel toys, sand, climbing apparatus, etc. These children need the opportunity for active play in all weather so covering a portion of the playground, as well as access to a gymnasium, adds to the learning opportunities. These outdoor play areas are best located next to the child's room with direct access from room to yard.

Space requirements according to the Day Nurseries Act are Playroom - minimum 30 sq.ft.per child (we consider 60 sq.ft. more ideal). Playground - minimum 60 sq.ft. per child (100 sq.ft. more ideal).

The Early Childhood Education facility needs to be a place of freedom where the child can be himself, discover himself and his world. While the people and programmes are essential for successful early childhood education - the right physical environment can be the catalyst which enables the child to receive the best that the people and programmes can offer.

EARLY CHILDHOOD EL
by Sister Johanna D'Ac

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changed to meet the changing skills and interests of

n the room should be on wheels or at least moveable. The
clude a washroom and cloakroom. A sink and water within
the programme possibilities.

o essential to a well-rounded programme. This should be
combining grass, trees and hard surfaces. It should
nt designed to promote the young child's physical and
el toys, sand, climbing apparatus, etc. These children
y for active play in all weather so covering a portion of
well as access to a gymnasium, adds to the learning
se outdoor play areas are best located next to the child's
cess from room to yard.

according to the Day Nurseries Act are Playroom - minimum
(we consider 60 sq.ft. more ideal). Playground - minimum
(100 sq.ft. more ideal).

l Education facility needs to be a place of freedom where
self, discover himself and his world. While the people
essential for successful early childhood education -
nvironment can be the catalyst which enables the child
that the people and programmes can offer.

EARLY CHILDHOOD EDUCATION - III
by Sister Johanna D'Agostino

A position statement in Early Childhood Education is necessary because our society is changing from a stable rural agricultural society to a mobile, urban, industrial technologically dominated one.

As environmental influences such as family structures and communication media change, new social values and expectations evolve. As a result, the young child experiences new pressures to which he must react.

The child today is different in some ways from the child of the pre-technological age. Television, for example, is having a marked influence on his development. With the advent of television, two significant things happened. Time collapsed and the horizon disappeared. The child's community is now the world. The young child is being propelled into a world that is changing at an overwhelming rate.

When schools remain rigid and do not meet the needs of the child, to cope with his changing world, conflict and frustrations are generated. In this rapidly changing world of today, it is necessary to reorganize and articulate clearly the principles of Child development and learning in terms of the total environment of today's child and to arrive at a clear definition of the purposes of early childhood education.

Early Childhood Education refers to the period following infancy. The child passes through the sequential developmental stages similar to those described by Jean Piaget, world famous child psychologist. Rates of development vary according to innate capacity and environmental influences.

Continuous observation and evaluation are necessary to determine the child's developmental level and needs because there is no definite chronological age at which the different stages are reached.

A young child will learn when he is free to handle things and when he is exposed progressively to a wide variety of carefully selected and structural materials. A child learns when he can observe, imitate and communicate with other children and adults.

The education of young children must be accepted as a joint responsibility of the home and the school.

In September, 1971, the Welland County Roman Catholic Separate School Board acted upon this responsibility and approved the Early Childhood Education pilot program presently in operation in three schools in the County. These schools are: St. Ann, Niagara Falls, St. Teresa, Port Colborne and St. Andrew, Welland.

The purpose of the program in these schools is to provide the child with a background of experience and language in order that the child may better manipulate and explore his environment. Research has demonstrated that guided experiences developed around the interests and abilities of a young child enrich his understanding of himself and the world in which he lives. In this lies the greatest significance of Early Childhood Education.

The program is in operation three mornings a week under the direct responsibility of the principal, conducted by trained student teachers from the Early Childhood Course at the Niagara College of Applied Arts and Technology. Mothers are actively involved in the program each day. Enrolment is a maximum of 20 children per session. Monthly evaluations by the personnel involved are held in each school, and evening parent Orientation sessions have been well attended. School Board representatives and Area Superintendents have also been in attendance at these meetings.

This program has received wide interest, and the support and co-operation on the part of School Board officials, nursery schools, day care centres, Educators, parents, Community Colleges and the Ontario Teachers' Federation.

Because learning begins at birth and is an active, continuous progress, education in the early years must aim at helping each individual child. A child needs to fulfill his potential through appropriate programs that provide a total learning environment that is stimulating, flexible, self-selective, inquisitive and pleasant. Our program aims at providing such an environment for learning.

EARLY CHILDHOOD
by D.V. Grayson

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EARLY CHILDHOOD EDUCATION - IV
by D.V. Grayson

Most of the discussions have been focused on programme or philosophy which is the important factor. This part will focus on the environment.

Space and environment is not the most important issue as has already been said; the learning process can go on almost in any space. Anything we can do, however, to enhance that space and make it more desirable, more pleasing, particularly for the younger children, is an indication that we are doing our job as those persons who are involved in the total process.

Most of my comments will be directed to the kindergarten, realizing that these comments will apply to a greater degree to the pre-school and to a lesser degree to the primary divisions. Our main objective is to attain the proper environment for the young child.

In the design of schools and in renovation programmes, kindergarten spaces are probably the most challenging. We are talking about an age group so far removed from us that we have probably forgotten what we were like when we were at that stage of life. We must stretch our imaginations to picture what these young children are going through. This, I think, is an important factor which should influence what the end result should be.

Planning

The first point we should discuss is the development of the plan itself. In order to do this we have to be very familiar with the program that is going to take place within the space. We should know the kinds of activities and understand the particular requirements such as quiet areas, wet areas, etc. We should also know exactly what happens when these activities are going on. However, we want to be very careful not to stereotype ourselves so that only specific things can happen in specific spaces. Nothing is more flexible than the program. In the past 10 years fantastic changes have taken place in philosophy in every aspect of education from kindergarten right up to the end of high school. If we stereotype ourselves too much then we make it difficult in the future.

One of the interesting things I have noticed in the past few years in the design of kindergartens was the philosophy relative to the location of a painted, inlaid circle in the middle of the room. This was used to regiment the kids. They could sit around that circle. It was commented that one child remembered somebody because they sat on the number 2 or the letter "G". With the advent of carpeting, we found it almost impossible to inlay a circle so it disappeared. I notice that the atmosphere in the non-circled rooms is far more pleasing and creates a relaxed atmosphere compared to the ones with circles, mainly because the regimentation is gone. This is good. There

is another influence that has caused this, namely, the more flexible attitude in all grades. The old seats row upon row with the teacher lecturing to the 36 kids in the room have now disappeared. We now have flexible seating arrangements throughout the entire school. So the general regimentation that we saw a few years ago has quickly disappeared from the kindergarten.

It is important also that we have a close relationship with the other parts of the school. It should be segregated for certain activities. The young child coming into the school for the first time is going through quite an emotional experience, but as they get used to this process, then the area should be opened out to become part of the total environment of the school.

Considerable comment has been made this morning relative to outdoor activities. Perhaps across the Province we have not done as much as we should have done in this area. I was very interested this morning in one of the slides which illustrated how a basement space was used by excavating some earth, thus creating an outdoor play area on ground that otherwise would have been wasted. There is no question that the child coming into kindergarten has to have a place to play. In site planning generally, a requirement should be to segregate the very young child from the very active outdoor sports of the senior grades. We should provide roofed-in space so that the small children can go out and play during inclement weather. I think we fall short in this area but I submit to you that this is an important aspect which probably requires more attention.

Technical Consideration

One of the more important technical aspects we should look at is lighting. Most of our kindergartens and younger age-group areas have one light level, usually 75 foot candles produced with fluorescent fixtures. Should we look at other lighting which would allow us to bring it down to the residential scale on occasion? For rest periods, which are very common at the kindergarten and pre-school level, why not turn the lights down gradually to a lower level? It wouldn't cost that much extra.

An important aspect when considering renovations or alterations is the location of existing plumbing. There should be separate washrooms for these very young children so that they don't have to wander down vast hallways, or be guided to far-away facilities.

Colour

Another thing we should look at very carefully is colour. I personally believe in the use of strong primary colours in areas used by the lower age level. To cheer up the environment the use of these colours as highlights is most effective. Monochromatic systems leave a lot to be desired and deaden the atmosphere.

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Scale

Probably the most important consideration for these very young people is the scale. Imagine a very young child who has spent most of his life in a house, walking into this vast arena with doors 8 feet tall that weigh 55 lbs. (so heavy that he can't open them). He finds himself in a space with ceilings 12 feet high with 75 foot candles of glaring light bearing down on him. The room is between 3 and 5 times the size of the living room that he has spent most of his life in. This must be a shock. We should do something to try and scale this down. We use drop ceilings in most spaces now so why stay at 10 feet? Why not bring it down to 8 feet? Let's try to make the doors a little lighter, particularly inside the room. Let's use dividers where a child can find small areas and be by himself at times without being in a large active room all the time. Let's not go too far with this type of thing though, particularly at the kindergarten level or above. We have put in special toilets (small size) for kindergartens before we came to the realization that the child uses the standard size plumbing fixture at home. Why should we take them out of that habit and cottle them to some special type of fixture? He's never seen the darn thing before -- he probably doesn't know how to use it! We can go too far but such things as the sinks should be lower so he doesn't have to climb up on a stepstool to get a drink of water.

And so the problem of scale is probably the most difficult one to satisfactorily solve but as suggested earlier -- probably one of the most important.

SHARED USE OF SCHOOL FACILITIES - I
by G.H. Waldrum

The highest birth rate ever recorded in Ontario was 26.8 births per thousand population in 1957. In 1968, however, the rate was 17.4 births per thousand, a drop of a third and approximately the same as it was in 1937, the lowest rate ever recorded in Ontario. Very significant changes in birth rates took place during 1964, 1965 and 1966. As a result, for the first time, fewer children entered kindergarten in September, 1970, than in the previous year, and fewer will start school each year during the next few years.

A study of population projections prepared by the Department of Treasury and Economics reveals that even though the overall population of a municipality or county may increase, the numbers in the elementary school age group will decrease, a situation we dare not ignore as we plan school facilities.

Let me provide a few illustrations of the changes in the number of births between 1962 and 1968 for a few areas:

	Births	
	1962	1968
Brant	1,881	1,509
Oxford	1,704	1,349
Perth	1,334	979
Haldimand	608	556
Welland (County)	3,804	3,020
Paris	126	95
Stratford	438	309
Grimsby	153	104
Simcoe (town)	232	170

In each of the areas the total population has increased, yet the number of births has declined. The cumulative effect of the smaller numbers of children born in the late 1960's compared with the early 1960's is inescapable. The conclusion is that we will not be building school facilities at anywhere near the rate at which we have been accustomed. In some areas of this province some school boards will be wondering what to do with all the space they have. In other areas, of course, the urban and suburban sprawl will continue and new facilities will have to be provided in those areas.

I should like to digress for a moment and compare the 1950's with the 1970's.

During the 1950's and the 1960's education had all the attributes of an expanding organization. The significant features of any expanding organization

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are the requirements of:

(a) an expanding budget,
(b) large amounts of capital funds, and
(c) large amounts of mobile personnel.

An expanding organization tends, I believe, to foster

(a) experimental and innovative approaches to problem solving,
(b) a high rate of upward mobility for the employees, and
(c) a state of high morale within the organization.

In the 1970's declining numbers of students will enable boards to concentrate on quality rather than quantity. On the other hand, the organization may develop some characteristics that are not totally desirable in a service such as education.

If we at least recognize the factors, we may be able to compensate and maintain a dynamic thrust.

Let me suggest a few characteristics that may emerge.

(a) Schools may become more conservative in their approaches to curriculum and organizational change. Declining numbers of new personnel, decrease in mobility and limitations on resources available may combine to restrict innovation and experimentation.

(b) The smaller numbers of pupils will affect adversely the employment opportunities for beginning teachers and the career prospects of practicing teachers. We should, I think, be searching for a replacement for the motivational force formerly provided by upward mobility lest we lose advantage of a more selective staff. I am thinking of creative opportunities for lateral transfers, special short study leaves, recognition for community and educational service, and creative professional responsibilities.

(c) As mobility decreases and enrolment declines, fewer young persons will have the opportunity to enter the teaching profession. It follows that if present employees stay on, the teaching work force will take on the characteristics of an aging one. Although earlier retirement opportunities were introduced very recently, the chances are that teachers will be older persons contracted in the early 1960's when over 50% of the teachers had a very limited number of years of experience.

I've been asked to say a few words on the sharing of school facilities. This is a complicated and fairly new concept to many people. There have been numerous instances, however, where elementary school boards rented space from a secondary school board.

In my opinion, the sharing should start by joint planning on the part of public and separate school boards as the need for school facilities becomes evident, particularly in areas of new housing. It seems to me if the officials of the two boards can estimate the total elementary pupil yield from the dwellings under construction, they can then estimate the numbers of children that can be expected to attend public schools and separate schools. If this is done, any mistakes will be in the realm of classrooms rather than whole schools.

From time to time changes take place in the social organization of a community and in the pattern of school support. It can happen that shifting ethnic populations may alter the primary religious adherence but not the total population figure in a community, with obvious consequences for both school boards. Where the changes become significant, one school board can find itself with surplus accommodation while the other board in the same community will have a shortage of accommodation.

In order that public funds are not spent to provide schools in areas where there is sufficient accommodation, it is imperative that public and separate school boards communicate and co-operate to make the most effective use of existing space. In one case that I know of, arrangements are being made to transfer ownership of a school from one board to another. Where it is not possible to transfer a whole school, it may be possible for one board to rent space from another, with an arrangement for both boards to share the use of certain facilities such as a gymnasium or library resource centre.

Whatever solutions we find, it is imperative that we search for flexible methods of utilizing our school resources. If we regard a school building as a means to an end, and not an end in itself, and if we recognize that our needs have diminished and someone else's have increased, we should, in the public interest, be flexible enough to relinquish our tenancy on part or all of the building.

The shared use of facilities will, in the future, be an accepted approach to solving school accommodation needs. School enrolments will wax and wane, school support will shift from public to separate, and from separate to public. We have an opportunity to resolve unique problems in creative ways.

SHARED USE OF SCHOO
by A.J. Barone

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SHARED USE OF SCHOOL FACILITIES - II
by A.J. Barone

The sharing of school facilities with community organizations and various municipal or provincial bodies has been in effect for many years. However, in most cases the school facilities were used outside of regular school hours, in the evening, on the weekend or during the summer holidays. More recently, in some areas of Metropolitan Toronto, community school programmes and information centres have been operated in co-operation with a local board at one or more schools during the school day. Also, in future, day care centres will no doubt be established in schools where sufficient classroom space is available and there is need for such service in the area. Several boards in the Toronto area have already completed studies in this regard.

In June 1970, Ontario introduced new legislation to allow separate and public schools to sell each other services. Prior to this, separate school boards could purchase services from public school boards but public school boards could not purchase services from separate school boards. Following this legislation, the term "joint use", "shared use" or "shared facilities" gradually became more and more common in Ontario. Although the sharing of services between boards has been increasing and facilities such as audio visual centres and administration centres are in some cases being operated on a shared basis, there have been few examples of sharing school buildings. The sharing of facilities between public and separate school boards is a matter which should be given a great deal of thought. One should not accept the concept because is it the "in-thing", nor reject it because it might not have instant appeal. One should attempt to approach the idea of sharing between public and separate school boards with an analytical outlook.

The Canadian Register of March 11, 1972 contained an article which stated the following regarding co-operation between boards - "We live as neighbours. We should work as neighbours". This statement seems to put the concept of shared facilities or inter-board co-operation in a more down-to-earth context. It is within a similar context, by means of an analogy, that the conditions and possible ramifications of shared facilities might possibly be explored. Public and separate school boards are autonomous, distinct, neighbouring communities while individual public and separate schools are each distinct families within their respective communities. The Catholic school community requires common purposes, shared beliefs, trust and friendship among its members. Liturgical celebrations, a specific religious commitment and pastoral involvement are but some of the necessary elements comprising the Catholic community. These elements are not part of the environment of the public school community, therefore, adjacent public and separate schools from a physical proximity point of view are neighbours but are at the same time members of different communities. Would sharing facilities

eventually lead to restrictions being placed on the normal practice of Religion in the Catholic school? Or vice-versa, would the particular philosophy of education in the Catholic schools and the inherent attitudes and values which are incorporated into the total curricula, influence the present non-denominational character of the public system? Should either of these situations evolve, what might be the reaction of the supporters of either system?

At the family (school) level in the analogy, one can envisage one family using the facilities of another by either outright purchasing, renting or borrowing. This readily applies to houses, garages, and various "neutral" items or facilities. Now to suggest that one family send some of its children to live with another family because there is a shortage of space in the house does not seem to be the proper thing to do. However, in the case of a short term need to provide accommodation until a suitable permanent arrangement can be made, sharing of facilities might be considered as a temporary rather than a permanent solution. This would suggest that the normal course would be to have separate accommodations.

A permanent sharing arrangement with some common facilities; under one roof, will no doubt elicit much reaction. According to the Hamilton "Spectator" (1-12-7) - "Some observers say such a move would be the first step toward the eventual integration of separate schools with the public system". This would suggest that the separate schools would perhaps not maintain their identity and in effect parents would loose their right to send their children to a distinctly separate school. Such being the case, possible sharing agreements would have to guarantee the identity of each school and avoid the possibility of disappearing via an integrating process.

Perhaps one might not agree with the point of view put forth in this presentation but in order to map out a mutually acceptable course of action one should take into account all points of view. However, before sharing of facilities is even considered further, the parties concerned should get thoroughly acquainted with each other, attempt to develop a mutual respect and recognize that each is to be considered as an equal in all undertakings requiring inter-board co-operation.

SHARED USE OF
by K.J. Regan

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SHARED USE OF SCHOOL FACILITIES - III
by K.J. Regan

What we really need in Ontario in the next few years is for many agencies of all sorts and of all levels to co-operate together to see that we make the maximum use of the investment that every community has in its public and separate school systems. They are magnificent structures that have been built at public expense in the years ahead - some of them are not going to be fully utilized for the purpose for which they were designed and constructed.

It is therefore my opinion that School Boards, community organizations, nursery school associations, day care centres, any and all agencies in every community must sit down together to plan ways in which the best possible use of these facilities can be made. For example, I think that the program of early childhood education, which is becoming such an important topic for consideration across Canada, across North America, must be seriously studied to determine its place in public education. In the community of London nearly a million dollars is being spent by the Province and by the City of London to provide nursery schools and day care centres with funds. It seems to me that these centers, which are now operating in church basements, converted homes and halls of all sorts, might very well move into the school system, either as an integral part of our educational organization or as an agency which is co-operating with a school board to make available in every neighbourhood the kind of early childhood education which parents are now demanding for their children. Certainly consideration must be given to whether this education takes place through a home alone, through child care centers or through the public education system. I think we have a responsibility wherever facilities are available, to co-operate, if we can, with these parents.

However, I think that before we co-operate with any other agency, or move outside our school system in considering shared use of facilities, we must determine that our own educational priorities are being met. We have a responsibility to develop the spiritual, physical, intellectual and social growth of our students. The school building is one of the tools we have chosen to do that. The school building along with the other resources and the equipment, the personnel, the program, that we give to the child, - the school building, enhances that growth and development and before we can agree to share a facility with any one else or to make a facility available to any one else, we must determine whether or not our educational priorities are being met.

An elementary separate school, on many outward respects, is identical to the public school down the street - in many respects it is also unique. In a separate school there are things that should be in that building for the kind of program that is being offered in that school which may not be acceptable to the parents of the public school child, which may not be acceptable in the light of the program that must be offered in the public schools in Ontario: and yet, it is an essential part of the separate school program.

We must also consider whether or not the facility being offered is suitable to the needs of the child. We have had the recent experience in our community of discussing with the Board of Education the shared use of facilities in a new senior composite school by elementary school pupils who are moving into that new subdivision. However, it was decided by our Board that the facilities which were available and freely available to us on the part of the Board of Education were totally unacceptable from an educational point-of-view. Financially, it made great sense for us to use that building. It made good sense for the Board of Education to have us using that building for a couple of years. Economically, it was the right thing to do; Educationally, it was totally wrong for us to put six, seven, eight, nine year old children into a beautiful new building that had been designed to serve two thousand fifteen, sixteen, seventeen and eighteen year old children and so we are transporting these youngsters to another school in an area not too far away from there.

However, time and circumstances throughout Ontario may be right for new solutions to be found to the new problem of excess buildings. It may be right for major changes in the uses that we think can be made of school facilities. I think if every agency co-operates as equals in their responsibility to make the best use of these publicly owned facilities some great new things can be done. Temporary ebbs and flows of pupil population can be handled. The needs of Adult Education programs, senior citizens centers, community recreation programs can all be satisfied, if we accept our obligation to do our own jobs well and to help others to do theirs.

THE INTEGRATION OF SCH
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THE INTEGRATION OF SCHOOL FACILITIES TO ACCOMMODATE EXCEPTIONAL CHILDREN by J. Fransen

The Haldimand County Board of Education does not have a highly sophisticated system of special education. Being a rural county with each of 15 boards having centralized their school system, it was found, nonetheless, that most schools were too small to operate a "withdrawal" special education program.

However, the part we are here to speak of this afternoon is in the area of facilities for retarded children.

As in many other areas, the County's School for Retarded Children had been established in a small two-room public school. From a small beginning the program received acceptance by the public and was generally considered successful. However, in spite of modifications to the building, it eventually became apparent that the facilities would be inadequate, as well as outdated. The Haldimand Association for Retarded Children had done a tremendous job in selling the need to the county. In fact, the County Council had taken steps to become the sponsoring agency for the school. This was interrupted when the Department entered the program by legislating Authorities into existence.

Being freed from the daily operations, the Association now turned to the idea of a new building for the program. A site was purchased and the ideas of an architect solicited. This is where it stood when on January 1, 1969 the County Board of Education was established and became responsible for the entire program - operation as well as facility.

The Advisory Committee met with the officials of the board to discuss each other's role, as well as to establish the present status of the building program. At this first meeting an idea that the future building might be an addition to a presently existing one was made. In rough blackboard sketches possibilities were explored. I am not sure whether the architect was in attendance at this meeting. The main concern at this point was that by abandoning the site selected by the Authority and adding to an existing school, three purposes would be served:

1. The school would be served by water and sewers which were not available on the Association's site
2. Heating facilities would be simplified and janitoral service available on a full-time basis.
3. Possibility of integrating some transportation with that of the public school.

The important point here was that although many people may have had reservations about such a program, all maintained an open mind. The School Board was not committed to such a plan and the Advisory Committee did not unilaterally oppose it.

The building program was not considered an immediate priority by the Board and was placed in the 1973 year in the Board's first five-year projection. In the second five-year projection it was advanced to 1971. The architect was consulted and initial plans discussed with the Advisory Committee. It had become general knowledge in the community that integrated facilities were being considered. Although suggestions were made by a variety of people, no one seemed to seriously oppose the integration idea.

As stated above, the reasons for the project were largely physical convenience (sewers, water, heating, janitor, and transportation). However, the staff of both schools have taken hold of the program in such a way that the advantages in the social behaviour field far outweight any conveniences which were envisioned. Senior pupils of the public school participate in the program for the retarded children in the noon hour. Those students walking to the public school enter the school yard at the entrance established for the School for Retarded and thus see these pupils at play. The acceptance has been beyond expectation. The children from the Retarded School go to the library resource centre of the public school for story time and musical listening experiences. They are, thus, using facilities which ordinarily would not be built into a school for retarded children. The large general purpose room of the elementary school is available to them. The sharing of facilities is proving beneficial.

What began as a program of improved physical conditions and a "holding down" of duplicating costs, has turned out to be a real educational advantage to both public school as well as retarded school children.

SCHOOL FACIL
by Dr. L.G. Ha

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SCHOOL FACILITIES IN ALBERTA
by Dr. L.G. Hall

Limited capital grants were introduced in the early fifties. The principle quickly evolved that support should be for instructional facilities and in 1954 specified grants were stipulated for instructional space. Provisions were made whereby boards could secure debentures through the Municipal Finance Corporation for additional costs. Grants were raised for instructional space until 1962 when support for debentures was specified up to $12.00 per sq.ft. of approved area for instructional and non-instructional facilities.

Regulations pursuant to the School Building Act, 1962, raised the support price to $14.00 in 1963 and to $16.00 per sq.ft. in 1966. A differential of support was established in 1967 of $16.00 for elementary schools and $17.00 for high schools with some further allowance for certain types of technical-vocational programs. The Regulations of 1970 specified support prices of $15.50 for elementary schools and $16.25 per sq.ft. for high schools following a trend of lower tenders and Report of a Research Committee on school construction.

The School Buildings Act provides that a school district shall apply to a provincial School Buildings Board for approval of any school building for which financial support is expected from a School Foundation Fund and no part of a project not approved by the Board shall be a charge against the School Foundation Program Fund.

The School Act stipulates no financial capital aid shall be given without prior approval of the School Buildings Board. It also states that where government support is expected prior approval of the Department, is required of the plans and specifications for proposed projects except in large systems having over 15,000 pupils. In any event the nature of the plans indicates the extent of financial support to be given. Expenditures beyond this are regarded as excess costs and though debenture funds are available debt servicing is not supported.

Regulations specify the size and nature of facilities in respect of instructional area and of non-instructional space which is not expected to exceed two-thirds of the former. Many spaces are generally sized for 30-pupil groups with smaller numbers acknowledged for some facilities. Spaces are not supported for kindergarten or pre-school classes. However, the entrance age has been accepted as 5.6 years with consideration of this figure being lowered.

Classrooms are 750 sq.ft. Elementary science rooms may have an additional 250 sq.ft. for equipment repository or for a larger classroom. Junior and High school laboratories are 1,300 sq.ft. plus storage space. The laboratorie

are considered home-rooms. Special ancillary rooms of varying sizes according to enrolment are approved as auxiliary space for instruction in art, music, dramatics, commercial electives, or other special fields. Home Economics rooms start at 1,400 sq.ft.; a first addition one may have a further 1,000 sq.ft. Industrial spaces may range from 2,800 or 3,200 sq.ft. to 4,000 or up to 8,000 for four-station shops in large secondary schools. Space is also provided for schools having sufficient enrolments to warrant business education and technical programs on a vocational school basis. Single station gymnasiums vary from minimums of 2,400 sq.ft. in a small elementary school, 4,000 in a junior high or 5,040 in a secondary school. Larger size or more stations will depend on the enrolment. Showers and dressing rooms, stages, and physical education offices are approved. An activity room of 1,600 sq.ft. may be provided instead of a gymnasium in a small elementary school or as auxiliary physical education area.

In addition to these various teaching stations, libraries are approved from 3 - 3½ sq.ft. per student. Study room-cafeterias are approved in high schools of over 700 students from large attendance areas where the majority will be remaining at the school for lunch. Auditoriums are not approved separately as gymnasiums or auxiliary ones usually serve the purpose. Administrative areas include space for offices, counselling services, staff lounge and work room, infirmaries, and storage.

The approved instructional and non-instructional space comprise a recognized gross area which averages about 77 sq.ft. per pupil in small elementary schools about 70 sq.ft. in the larger ones. The figure in small junior high schools is about 107 sq.ft. and in the larger ones over 18 rooms about 95 sq.ft. per pupil. Small high schools of about 300 - 400 pupils indicate 115 sq.ft. per student and those of 750 - 1,000 students are averaging about 100 sq.ft. while the largest ones show a range of 90 to 100 sq.ft. Spaces are larger for those with technical-vocational facilities.

Freedom to redistribute the recognized instructional space permits some of it to be used as enlargement of particular areas such as incorporating the space of two classrooms with the library in a large open area. In the open area sections that would otherwise provide corridors is included in the instructional area.

Nevertheless, some school authorities wish to build beyond the approved size of some facilities such as libraries. Such excess area is not supported and districts are expected to assume the cost from their current revenue.

There is no specified separate support for furnishings and equipment. If contract prices are below the support price the difference up to one dollar per sq.ft. may be used for this purpose and one-half of any difference in cost below that as a bonus for the furnishings or site development.

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Equipment for vocational facilities is supported up to 90% of the cost of approved initial equipment and two-thirds of the cost of approved replacements.

No support is provided for the purchase of sites. Special grants are provided for accommodation for children with mental or physical handicaps.

Though there has been expressed concern about rising costs because of increased prices for materials and labor the contract prices have been reasonably compatible with support amounts. The effects on general construction of declining interest rates and a general attitude concerning tight money, restricted credit, and materials tax may have been reflected in school tenders. Costs may depend on the location and time of tendering as well as on the size of a new school or an addition and the nature of the facilities. They may also depend on local expectations, design specifications, and items of sophisticated equipment, particularly, in the mechanical and electrical features. Occasionally when tenders are much higher than the support price discussions between the architect and the low bidder ensue for changing some items or altering the design, in order to reduce the cost. The concern is that such alterations may not reduce the basic quality of the building or escalate the maintenance costs. The accompanying charts indicate the locations, time of tendering, gross sizes, and tender prices for recent new schools and additions.

NEW SCHOOLS 1970

District	Division-County	Name & Type of School	Gross Area	Date Tender Approved	Cost Per Sq.Ft.
Edmonton R.C.S.	-	St. Jerome Elementary	19,864	February	$ 15.18
Fort Saskatchewan	Strathcona Cty.	Pineview Elem. & Jr. High	31,360	March	17.22
Calgary R.C.S.	-	Bishop Carroll High (acad. and business education)	128,781	March	16.24
Calgary R.C.S.	-	St. Dominic Elementary	16,776	April	15.98
Salisbury	Strathcona Cty.	Westboro Elementary	37,493	May	15.55
Strathmore	Wheatland Cty.	Elementary	24,920	May	14.40
Slave Lake	High Prairie Div.	Elementary	20,217	June	16.25
Leduc	Leduc Cty.	Willow Park Elementary	19,857	June	14.56
Calgary Public	-	Nickle Junior High	60,611	July	15.03
Calgary Public	-	John G. Diefenbaker Sr. High (acad.-bus. educ.)	116,110	August	15.95
Springbank	Calgary Div.	Elementary	34,774	August	15.13
Calgary Public	-	Canyon Meadows Elem.	42,566	September	14.29
Grande Cache	-	Elementary	27,739	October	
Slave Lake	High Prairie Div.	High School	33,204	November	16.66
O'Donnell	Sturgeon Div.	Sturgeon Heights Elem. & Junior High	42,134	December	16.04

NEW SCHOOLS 1971

District	Division -County	Name & Type of School	Gross Area	Date Tender Approved	Cost Per Sq.Ft.

Calgary R.C.S.	-	St. Dominic Elementary	16,776	April	15.98
Salisbury	Strathcona Cty.	Westboro Elementary	37,493	May	15.55
Strathmore	Wheatland Cty.	Elementary	24,920	May	14.40
Slave Lake	High Prairie Div.	Elementary	20,217	June	16.25
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NEW SCHOOLS 1971

District	Division -County	Name & Type of School	Gross Area	Date Tender Approved	Cost Per Sq.Ft.
Calgary Public	-	West Dover Elementary	37,933	January	$ 13.96
Calgary Public	-	Andrew Sibbald Elementary	37,933	January	14.48
Calgary Public	-	Alex Munro Elementary	37,933	January	14.19
Calgary Public	-	Penbrooke Meadows Elem.	34,729	January	14.60
Edmonton R.C.S.	-	St. Philip Elementary	22,425	February	14.48
Bonnyville 2665	Bonnyville Div. 46	Senior High	53,545	February	16.36
Calgary Public	-	Bob Edwards Jr. High	46,324	February	15.03
Calgary Public	-	Louis Riel Jr. High	46,324	February	15.13
Calgary Public	-	H.D. Cartwright Jr. High	46,324	February	15.17
Calgary R.C.S.	-	St. Boniface Elementary	19,717	March	15.99
Calgary R.C.S.	-	St. Henry Elementary	19,717	March	15.51
Calgary R.C.S.	-	St. Catharine Elementary	19,717	March	15.00
Salisbury	Strathcona Cty. 20	Millshaven Elementary	37,242	March	15.66
Stony Plain	Parkland Cty. 30	Junior High	36,705	March	13.45
Drayton Valley	Parkland Cty. 30	Junior-Senior High	44,760	March	16.43
Edmonton Public	-	Evansdale Elementary	33,985	March	14.40
Edmonton Public	-	Duggan Elementary	39,485	April	15.02

NEW SCHOOLS 1971

District	Division-County	Name & Type of School	Gross Area	Date Tender Approved	Cost Per Sq.Ft.
Calgary Public	-	West Acadia Elementary	36,573	April	15.33
Calgary Public	-	Jerry Potts Elementary	30,480	April	16.03
Grand Centre	Bonnyville Div. 46	Junior-Senior High	74,212	May	17.39
Edmonton Public	-	Thorncliff Elementary	35,975	May	15.17
Edmonton Public	-	McLeod Elementary	33,838	August	14.68
Edmonton P.C.S.	-	J.H. Picard Jr. Sr. High	69,500	August	17.38
Salisbury	Strathcona Cty. 20	Clover Bar Jr. High	52,540	September	16.42
Evansburg	Yellowhead Div. 12	Senior High	55,880	October	16.16
Edmonton Public	-	Grace Martin Elementary	39,980	December	16.21
St. Albert P.S.6	-	Senior High	73,810	December	16.21

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School District	Name of Sch	Elementary
New Sarepta	Hillside Elem	
Grande Prairie	High School	
Sedgewick	Elem. & Jr. H	
Blackfalds	Elem. & Jr. H	
Crossfield	Springfield El	
Peace River	Alexandra Jr.	
Medicine Hat	Oriole Park El	
Red Deer	St. Boniface	
Edmonton	Father Leo Gr	
Edmonton	Dr. Karl A. C	
Fort McMurray	Providence El Jr. High	
McLennan	Central Elem.	
Taber		

Edmonton Public	-	McLeod Elementary		33,838	August	14.68
Edmonton R.C.S.	-	J.H. Picard Jr. Sr. High		69,500	August	17.38
Salisbury	Strathcona Cty. 20	Clover Bar Jr. High		52,540	September	16.42
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St. Albert P.S.6	-	Senior High		73,810	December	16.21

TENDERS APPROVED APRIL - SEPTEMBER 1971

FOR SCHOOL ADDITIONS

School District	Name of School	New School or Addition	Gross Area Sq. Ft.	Approx. Cost per Sq.Ft. (Inc. Fees Less Sales Tax)
New Sarepta	Elementary	Addition	4,029	$ 18.79
Grande Prairie	Hillside Elem.	Addition	12,454	16.34
Sedgewick	High School	Addition	13,093	14.98
Blackfalds	Elem. & Jr. High	Addition	3,605	17.95
Crossfield	Elem. & Jr. High	Addition	5,684	16.71
Peace River	Springfield Elem.	Addition	4,182	18.65
Medicine Hat	Alexandra Jr. High	Addition	33,516	15.78
Red Deer	Oriole Park Elem.	Addition	5,669	16.54
Edmonton	St. Boniface Elem.	Addition	7,338	16.70
Edmonton	Father Leo Green El.	Addition	15,492	14.66
Fort McMurray	Dr. Karl A. Clark El.	Addition	10,700	19.96
McLennan	Providence Elem. & Jr. High	Addition	9,176	15.99
Taber	Central Elem.	Addition	18,587	15.48

For some years, portable classrooms have been recognized for support to meet the need for one or two classrooms to accommodate sudden influxes of enrolment that might not be permanent or to fulfill an initial need until increasing enrolments warranted a permanent building or addition to an existing one. Many have been placed in isolated areas or areas of sudden industrial development where stability of population has not been established. In the cities portables may be used extensively as "starter schools" in new suburbs until the developments indicate the actual building need. They may also be used to accommodate a small enrolment increase for a short time or where the cost of a very small permanent addition might be excessive. Another advantage is that as their need ceases in an area they may be easily moved to another location. They are usually set apart on the site although under special conditions they may be attached to the existing building. Some of them are double or multiple units of a relocatable nature. There are about 270 portables in Edmonton and Calgary and another 175 or so throughout the rest of the province. Some of these are trailer classrooms mounted on wheels for ready transfer. The unit area is 750 sq.ft. or about 1,000 sq.ft. if washrooms are included. The specifications must have the approval of the Department of Education. Recognition of need must be approved by the School Buildings Board. Financing is secured through five-year loans or debenture borrowing in the same manner as for other school building projects before tenders are accepted. The support price is the actual cost up to $12.00 a square foot. Occasionally, boards may rent them under a purchase-option basis which may be acknowledged on a price adjustment if recognition of need is given later.

A recent feature of relocatability applies to some portable gymnasiums secured in Edmonton in the past two years. Most of the components of these may be taken apart and reassembled at some other location. Costs for one of 2,400 sq.ft. have approximated $42,000 although plumbing facilities and other specifications have enlarged the size of others for a price of about $60,000.

Unless new construction was involved, financial support for renovations was very limited until 1970. The priority for allocation of debenture funds applied where increased enrolments required new buildings or additions to others.

It has been intended that new school buildings should have facilities appropriate to the demands of the curriculum. When additions were made it was customary to improve the educational function by renovating some of the existing instructional facilities. This frequently meant converting some space to other use such as for library, science laboratory, administrative space, or other purpose. Financial support through debenture funds was provided for such approved renovations which were distinct from upgrading or improving the maintenance of the structure.

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upport price is the actual cost up to $12.00 a
boards may rent them under a purchase-option
edged on a price adjustment if recognition of need

ility applies to some portable gymnasiums secured
years. Most of the components of these may be
at some other location. Costs for one of 2,400
2,000 although plumbing facilities and other
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s involved, financial support for renovations was
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required new buildings or additions to others.

w school buildings should have facilities appropriate
ulum. When additions were made it was
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Many old buildings, particularly in the cities, did not warrant additions and some of the facilities in these were educationally inadequate. As support funds were usually not available, some boards did little on buildings and so their educational functions further declined. However, other boards wished to upgrade various schools and asked that some of the proposed improvements be approved for support as renovations.

Increasing regard for different teaching procedures, libraries, and curriculur changes in such fields as science, fine arts, and physical education emphasized that many facilities were lacking or were unsatisfactory in the old schools. In addition to that some features such as floors or heating systems needed improvements as they had passed the stage of further maintenance.

Renovations were construed as changes in use of existing space. For example, a small gymnasium might be converted to an instructional materials center or a classroom or two might be converted to a library or as an extension to an existing one. Renovation of a classroom to an elementary science room was acknowledged though in a lesser degree than for senior laboratories.

Early in 1970 city boards of Edmonton and Calgary were asked to estimate the degree of improvements desired to make the functional facilities more comparable to those of newer schools. After some exploration of needs, the debenture funds to these city boards were increased by two millions. This was to be allocated as support of approved renovations in a number of schools selected by each board. Proposals and discussions culminated in some tentative guidelines being established. Attention was directed chiefly at instructional facilities but the age and nature of various buildings militated against establishing a uniform policy applicable to all buildings.

The results were regarded as praiseworthy. Improvements in over sixty schools included conversion of classrooms to science laboratories, renovation of other classrooms, small gymnasiums, or playrooms to libraries and some administrative area, repair of worn-out floors, and provision of additional gymnasium space and some instructional area, frequently portables - where classrooms had been renovated to other uses. For most of the projects districts shared in the costs by paying for considerable upgrading that was effected at the same time as the other improvements for which support funds were provided. In a few cases, some renovation costs were assumed for extra area desired, particularly for libraries. Support was given for approved equipment and furniture in the renovated areas. Generally, the school systems assessed the needs and priorities before hastily incurring expenditures.

In 1971, similar amounts allocated to Edmonton and Calgary districts to continue such improvements, hopefully, in the remainder of the older buildings. The program was extended to districts outside these cities for which a further two millions in debenture funds was designated.

The funds were intended for improvement of instructional facilities, particularly

in respect of science laboratories and libraries, and were not intended for general maintenance and upgrading except in very old schools of sound structure where some features such as heating systems or floors had outlived their usefulness and something was needed to extend the life of the building.

The two large cities proceeded with renovations in over seventy schools; over one-half the divisions and counties as well as about thirty independent districts received approval for proposed renovations. The results have greatly enhanced the appearance and use of the buildings and have been most gratifying to all concerned.

Support has not generally been designated for maintenance or extensive repairs. For a short while in the early sixties, the distribution of funds from a Foundation Program Fund included a specified amount for maintenance but this designation was soon discontinued. Capital expenditures for repairs have usually been assumed at the local level, except in a few extreme instances in renovation programs. However, there are many old buildings and others built some years later which require extensive repairs to prolong their life and safeguard their continued use.

Electrical and mechanical services, roofs, window frames, doors, and floors are included in the items needing attention. It is proposed that some cost-sharing should be undertaken for the upgrading.

Community use of schools has been encouraged. Reciprocal use of educational and recreational facilities in an area tends to reduce duplicated expenditures. The desire of the public for the use of schools is reflected in a considerable number of uses by community agencies. A large number of these agencies have understandings with school authorities for the use of existing facilities. Government favor has been expressed for any extension of this practice and it is hoped that in planning new facilities combined use may be facilitated. It is accepted that many of the facilities built for school use can also be used by the community and that additional ones for the use of community agencies only could be arranged for in the construction of a new school. Local support for such additional facilities has been arranged in a number of centers. Legislation provides for agreements for joint planning, construction, maintenance, or use of schools for various agencies of the community. Frequently these are arranged through recreation committees or other branches of the municipal authorities. Government Departments offer assistance in the co-operative planning and development of school-community facilities and programs.

Buildings have always been one of the acknowledged needs for education. The expenditures for accommodation, furnishings and equipment have risen steadily in response to larger enrolments, program demands, and society's expectations. Changing curriculum has emphasized educational technology, open concepts or flexible team-teaching areas, more library services and expanded space for fine arts, physical education, home economics as well as commercial and technical e

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Latest trends are evident in examples of open areas, seminar rooms, standardization of specifications, large instructional media centers, and more administrative and counselling services. Science and language laboratories, audio-visual aids, and other technological features have been emphasized. Attention has been directed to acoustics, modular construction, and features of physical environment. Architects and engineers have felt impelled to restrain rising costs and yet improve buildings with extra features such as constant environment, humidity control, better ventilation, and air filtration. Many new materials and structural innovations have been studied. Building personnel of the cities have associated themselves as an Education Facilities Council to consider acceptable standard quality of materials and standardization of many components. Concern has been serious about flexibility, bulk purchasing of materials, and a systems approach in construction with project management. Building codes have promoted statements concerning the needs and requirements. The mobility of population or unscheduled development of various residential suburbs has prompted some construction of core facilities with plug-in sections. If extended in practice it may have significance for design. Information about air supported structures, multi-use buildings and educational parks has aroused questioning interest.

An innovative program associated with the N.A.S.S.P. - Model Schools Project of interest to Dr. Trump was initiated at the Bishop Carroll High School in Calgary. The three-storey structure of 128,780 sq.ft. gross area is expected to accommodate about 1,200 students. The instructional space recognized was distributed according to the demands of the program. For example, one laboratory is very small while an adjacent one is larger than the usual size. Nine resource centers with carpeted open areas varying from 1,200 to 2,400 sq.ft. provide for learning activities in different subject areas. Other features are many seminar rooms and over twenty-five offices for discussions between individual students or small groups and teachers. Another different feature is a large theatre for team-teaching or presentations to large assemblies.

Comments on some features such as open areas often are but expressions of controversial opinion. Many schools, particularly at the elementary level, contain considerable open class spaces that usually include the library. Sometimes such an area represents the space of only two or three classrooms with some provision for space variability. Many views are very favorable. However, observations are frequently conditioned by regard for the effectiveness of the learning environment as well as the attitude, experience, and qualifications of the teaching personnel.

Arguments abound for continued single-purpose space as distinguished from requests for flexibility. The rapidity of change dictates that neither education nor the use of buildings is static. Moveable walls may not be the answer to

current demands and may not provide for an acceptable relationship between instructional areas and the equipment needed in an effective functioning of the facility. Architects express opinions about environmental effects on learners and on delicate sophisticated equipment.

It is difficult to foretell the nature of design or requirements in a few years. Henry Ford, when once queried about the design of cars ten years hence, responded that "if he knew he would be building them now." Surely, the concern for flexibility and adaptability will continue. But much research will be imperative about new learning procedures and goals, space requirements and performance criteria. Undoubtedly, regard will increase for a more interdisciplinary approach in design and for more communication between architects and educators about educational specifications to be incorporated.